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Bulletin of the British Ornithologists' Club

Volume 121 No.1
March 2001

MEETINGS are held in the **Sherfield Building** of **Imperial College**, South Kensington, London, SW7. The nearest Tube station is at South Kensington; a map of the area will be sent to members on request. (Limited car parking facilities can be reserved, on prior application to the Hon. Secretary). The cash bar is open from **6.15 pm**, and a buffet supper, of two courses followed by coffee, is served at **7.00 pm.** (A vegetarian menu can be arranged if ordered at the time of booking). Dinner charges are **£17.00.** Informal talks are given on completion, commencing at about 8.00 pm.

FORTHCOMING MEETINGS

3 April - 900th Meeting.
Robert McCracken Peck - *"John James Audubon in the American West: The Last Expedition"*.
Mr Bob Peck, a Fellow of the Academy of Natural Sciences of Philadelphia, is a distinguished historian and naturalist, the author of the the BBC book *"Land of the Eagle: A Natural History of North America"*, and a consulting curator for the exhibition "*Audubon in the West"* now touring the USA. Using slides of Audubon's western paintings and artefacts gathered during his expedition in 1843, Bob will describe Audubon's last great adventure and put its accomplishments into the broader context of its time. A fully illustrated catalogue, with essays by Mr Peck and others, accompanies the exhibition, and will be available for purchase at this meeting.

*Applications to the Hon. Secretary by **20 March** please.*

Tuesday 1 May. ANNUAL GENERAL MEETING AT 6.p.m., followed by a **Club Social Evening.** There will be no speaker, but Members are invited to bring along one or two slides (or a specimen!) of a bird of topical interest, and to speak **for not more than 5-10 minutes** about it. The aim will be to generate discussion, and to facilitate the exchange of information between Members.

*Applications to the Hon. Secretary by **17 April,** please, including subjects to be raised, and any special facilities required.*

3 July - Frank D. Steinheimer* "*Undiscovered Cambodia - the endemics of the Cardamom Mountains."*
Frank was born in 1971 in Nuremberg, Germany, and studied zoology at Vienna University 1994-98, during which time he made field trips to foreign countries (Europe, Borneo, Thailand, Malaysia). He also gained experience working for the Bird Department of the Vienna Museum, also in Paris Museum. Since September 1998, Frank has been employed in the Bird Group of The Natural History Museum,Tring, working mainly with the wet anatomical and historically important collections (e.g. Darwin). In spring 2000 he took part in an expedition to west Cambodia.
*This talk was postponed from 16 January 2001

*Applications to the Hon. Secretary by **19 June** please.*

Future meetings - advance notice
25 September - Phil Cannings - *The work of a Police Wildlife Liaison Officer.*
6 November - to be arranged.
4 December - John Sparks - *Experiences of a Wildlife Film-maker.*

Overseas Members visiting Britain are especially welcome at these meetings, and the Hon. Secretary would be very pleased to hear from anyone who can offer to talk to the Club, giving as much advance notice as possible - please contact: Michael Casement, Dene Cottage, West Harting, Petersfield, Hants. GU31 5PA. UK. Tel/FAX:01730-825280 (or Email: mbcasement@aol.com).

FRONT COVER ILLUSTRATION

As the *Bulletin* is launched into the new millennium, a more dynamic Sacred Ibis has been chosen for our cover. This has been drawn by BOC member Julian Pender Hume and incorporated into a new cover design by Marc Dando of Fluke Art. We are grateful to Julian and Marc for the creation of this new active image for the *Bulletin*. Ed.

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Bulletin of the BRITISH ORNITHOLOGISTS' CLUB

Vol. 121 No. 1 Published 16 March 2001

EDITORIAL

The publication of papers involving collecting

The British Ornithologists' Club has a long tradition of publishing papers on avian taxonomy and distribution in its *Bulletin*. Research in these areas depends strongly on collecting and the use of museum specimens, and as a result many, if not most, of the papers that have appeared incorporate reference to such material. This very much remains the case, but one which increasingly needs to be interpreted against the backdrop of inexorably growing threats to the long-term survival of bird species throughout the world and commensurate increases in the range of legislation having the aim, if not always the effect, of preventing their demise. This in turn places obligations on all concerned with the practice and publication of such research to demonstrate that any new collecting can be shown to have been undertaken in both a legal **and** ethical manner.

Legal requirements should be straightforward to comply with in principle, but in practise may pose considerable complexities, perhaps most acutely in understanding the range of permissions, from national to local, that law and custom may require in any particular country or region. Additionally, international requirements for the movement of specimens around the world must be respected.

Ethical requirements are even more problematical, but a sound framework within which to interpret them is now in place thanks to the constructive reviews of Remsen (1995) and Collar (2000). Prospective authors are also encouraged to look at the *British Ornithologists' Union*'s statement on ethics. A delicate balance must be struck between the needs of scientific advancement, especially for conservation, and the need for (further) specimens. Procurement of these specimens (including parts and blood samples) should be undertaken in a humane way, and museum specimens should be securely housed where they will be accessible to future workers.

The Editor will retain his final discretion as to what is acceptable for publication in the Bulletin, but authors submitting papers should incorporate clear evidence that their research has taken into account these legal and ethical requirements.

References:
British Ornithologists' Union. http://www.bou.org.uk/boupolicy.html
Collar, N.J. 2000. Collecting and conservation: cause and effect. *Bird Conserv. Internatn.* 10: 1-15.
Remsen, J.V. 1995. The importance of continued collecting of bird specimens to ornithology and bird conservation. *Bird Conserv. Internatn.* 5: 145-180.

SPECIAL OFFER

BIRDS, DISCOVERY AND CONSERVATION [1992], edited by David Snow

This anthology celebrates 100 years of the Bulletin and contains fascinating and historically important extracts from papers published during that period.
LIMITED FINAL STOCK AVAILABLE AT £7.50 + £3 POSTAGE PER COPY FROM THE HON. PUBLICATIONS OFFICER, J A Jobling, 14 The Valley Green, Welwyn Garden City, Herts AL8 7DQ, UK.

The following is the full text of the revised Rules approved at the Special General Meeting held on 31 October 2000 - see *Bulletin* 120 (4) page 201.

RULES OF THE CLUB

(Approved 31 October 2000)

TITLE AND OBJECTS

1. The objects of the British Ornithologists' Club ("the Club") are the promotion of scientific discussion between Members of the British Ornithologists' Union and others interested in ornithology, and to facilitate the dissemination of scientific information concerned with ornithology. The Club shall maintain its special interest in avian systematics, taxonomy and distribution.

MEMBERSHIP

2. Any individual interested in promoting the objects of the Club may become a Member on payment of the appropriate annual subscription, under the terms of Rule 21, and subject to confirmation by the Committee at its next meeting.
3. A Member who has an unbroken membership of the Club for fifty years shall become a Life Member and shall not be required to pay any further subscriptions.

THE MANAGEMENT COMMITTEE

4. There shall be a Management Committee ("the Committee"), elected from amongst the Members, which shall be responsible for the general control and management of the Club.
5. The Committee shall consist of four Officers, namely a Chairman and a Vice-Chairman each elected for a term of four years, an Honorary Secretary and an Honorary Treasurer each elected for a term of one year, and five other Members, each of whom shall be elected for a term of four years.
6. At least five of the nine Members of the Committee shall be Members of the British Ornithologists' Union.
7. The Members of the Committee are legally trustees of the Club.
8. The Officers and the other five Members of the Committee shall be elected by a simple majority of those Members of the Club present and voting at an Annual or Special General Meeting.
9 With the exception of the Honorary Secretary and Honorary Treasurer, the Officers and other Members of the Committee shall be ineligible for re-election to the same office or position on the Committee for one year after completion of their elected term. A Co-opted Member appointed under Rule 17 and retiring at an Annual General Meeting shall be eligible for immediate re-election.

10. For the purposes of Rules 5 and 9, a year shall be reckoned from the close of one Annual General Meeting until the next or, in the case of an Officer or Member of Committee elected at a Special General Meeting, from the close of that Special General Meeting until the next Annual General Meeting.
11. A quorum of the Committee shall be any five Members of the Committee at least two of whom shall be Officers.

NOMINATIONS FOR THE MANAGEMENT COMMITTEE

12. The Committee shall nominate members to be Officers or Members of the Committee.
13. The names of proposed Officers and other proposed Members of the Committee nominated by the Committee shall be circulated to the membership at least three weeks before the relevant Annual or Special General Meeting.

14. Any Member wishing to nominate a candidate shall forward the nomination to the Honorary Secretary in writing signed by the nominating Member and five other Members, with confirmation that the candidate has agreed to be nominated. To be valid, such nomination shall reach the Honorary Secretary not less than 14 days before the relevant Annual or Special General Meeting.

APPOINTMENTS BY THE MANAGEMENT COMMITTEE

15. At its first meeting following each Annual General Meeting the Committee may appoint:
(a) A Publications Sub-committee to administer the production and sales of Club publications, other than the *Bulletin*, and to assist the Editor of the *Bulletin* as may be required.
(b) An *ex-officio* Publications Officer, to be a member of the Publications Sub-committee with responsibility for overseeing the sales of Club publications and other products.
(c) An *ex-officio* Archivist to be curator of the Club's historic records.

16. The Committee may appoint additional sub-committees, *ex-officio* officers and members to advise on and administer specific activities of the Club.

17. The Committee may co-opt a Member ("the Co-opted Member") onto the Committee to fill temporarily, until the closure of the following Annual General Meeting, any vacancy that may occur on the Committee. Not more than three Co-opted Members are permitted at any one time.

18. There shall be an Editor of the *Bulletin*, appointed by the Committee for a term not exceeding four years. The Editor shall be eligible for re-appointment.

19. The Committee shall, when necessary, appoint Trustees of the Herbert Stevens Trust in accordance with the terms of the relevant Trust Deed.

20. The Chairman and Members of Sub-Committees, Trustees, and all *ex-officio* officers or members may attend meetings of the Committee, by invitation of the Chairman or the Committee, but without the right to vote on any issue.

SUBSCRIPTIONS AND INSTITUTIONAL SUBSCRIBERS

21. The annual subscription rate for Members shall be determined by the Committee from time to time. The rate shall be discounted for any Member who is also a member of the British Ornithologists' Union.

22. The Committee shall determine the annual subscription rate to be paid by institutions and other organisations ("Institutional Subscribers") wishing to receive the *Bulletin*.

23. The annual subscriptions under both Rules 21 and 22 shall be due for payment on the first day of January in every year.

24. The Committee shall be entitled to terminate the membership of any Member whose subscription has not been paid within six months of falling due, provided that such Member has been given written notice calling for payment of the subscription, and that notice has not been complied with within one month of its date.

25. When any Member, who is not an Officer or other Member of the Committee, has rendered or is rendering the Club any service, the Committee may, if it deems appropriate, waive the subscription due from that Member for any year, or years.

MEETINGS

26. The Club shall meet not less than four times a year at times and places to be arranged by the Committee, in furtherance of the Objects of the Club.

27. Members may introduce guests at any ordinary meeting of the Club, except that no former Member, whose membership has been terminated for any cause and who has not been reinstated, shall be allowed to attend a meeting without the permission of the Chairman or, in his absence, the Vice-Chairman.

28. The Annual General Meeting of the Club shall be held not later than 30th June every year on a date to be fixed by the Committee. At this meeting the business to be transacted shall be to receive and consider the Report of the Committee and the accounts of the preceding calendar year, the regulation of matters having reference to the *Bulletin*, the election of Officers and other Members of the Committee, and any other business of which notice in writing shall have been given to the Honorary Secretary prior to 31st January in the same year.

29. Notice of at least three weeks shall be given by the Committee of every Annual General Meeting.

30. A Special General Meeting may be called by the Committee for any purpose which it deems to be of sufficient importance or at the instance of a requisition signed by at least 15 Members, stating the purpose for which the Meeting is being requisitioned, and sent to the Honorary Secretary. Notice of at least three weeks shall be given to Members of a Special General Meeting and the notice convening it shall state the purpose of the Meeting; no other business may be transacted at the Meeting.

'BULLETIN' OF THE CLUB

31. A journal under the title of the "Bulletin of the British Ornithologists' Club" shall be published not less than four times per year and one copy shall be distributed *gratis* to every member and Institutional Subscriber who has paid the appropriate current annual subscription.

32. The Editor may receive an annual honorarium for such work, which shall be determined by the Committee from time to time, and may attend any meeting of the Committee, as an *ex-officio* Member in accordance with Rule 20 above, for the purposes of offering advice on all editorial matters, but executive authority rests with the Members of the Committee as Trustees of the Club.

33. No communication, the whole or any part of which has already been published elsewhere, shall be eligible for publication in the *Bulletin*, except at the discretion of the Editor.

MANAGEMENT OF TRUST FUNDS

34. Subject to the terms of any bequest or gift, any stocks, shares, other securities, money or other property (whether real or personal) from time to time belonging to the Club may be vested in Trustees for the Club, if the Club shall by a Special Resolution so decide. Such Special Resolution shall appoint Trustees, and shall specify the trusts under which the property is to be held.

CONDUCT OF MEMBERS

35. If the conduct of any Member shall be deemed by not less than five members of the Committee present at a meeting of the Committee, to be prejudicial to the interests of the Club, that Member shall be:

(a) so informed by a letter from the Honorary Secretary,
and,

(b) given an opportunity of appearing in person before the Committee to explain the conduct in question.

36. The Committee may then terminate that Member's membership forthwith if:

(a) at a meeting of the Committee attended by that Member, not less than five Members of the Committee are dissatisfied with the explanation given,

(b) the Member does not appear before the Committee in person, but gives an explanation which not less than five Members of the Committee deem to be unsatisfactory,
or,

(c) no explanation has been received from the Member within twenty-eight days of the despatch of the Honorary Secretary's letter under Rule 35(a).

37. The decision of the Committee shall be communicated to the Member by the Honorary Secretary within three weeks of the relevant Committee Meeting.

COMPLAINTS

38. A Member wishing to complain of the manner in which affairs of the Club are conducted must communicate the complaint in writing to the Chairman or Honorary Secretary who will raise the complaint as soon as practicable at a meeting of the Committee for a decision or, if the recipient of the complaint considers the matter of urgency, will call a meeting of the Committee specially to consider it.

39. The decision of the Committee shall be communicated to the Member by the Honorary Secretary within three weeks of the relevant Committee Meeting.

CHANGES TO THE RULES

40. Proposals to change the rules, or any part thereof, shall be set out in a Special Resolution which shall:

(a) be decided at an Annual General Meeting, or at a Special General Meeting especially convened for that purpose,

and

(b) be published in the *Bulletin*, together with details of the Agenda for the Annual or Special General Meeting, at least three months before the date of the meeting at which the resolution is to be decided.

41. Members may vote on resolutions to change the rules, or any part thereof, either by notifying the Honorary Secretary accordingly in writing, to be received no later than three days before, or by attendance and voting at, the meeting at which the resolution is to be decided.

42. No amendment shall be made to the rules if it would have the effect of making the Club cease to be a charity at law.

INDEMNITY INSURANCE

43. The Committee shall be entitled, subject to prior approval of the Charity Commissioners, to take out policies of insurance covering their individual or joint liability for any negligence, default, breach of duty or breach of trust in relation to the Club and pay any premium for such cover out of the Club's finances, providing that such insurance or indemnity shall not extend to any act or omission which the Committee or any member thereof knew to be a breach of duty or a breach of trust or which was committed by the Committee or any member thereof in reckless disregard of whether it was a breach of duty or breach of trust or not.

INCOME AND PROPERTY

44. The income and property of the Club, whencesoever derived shall be applied solely towards the promotion of the objects of the Club as described under Title and Objects in these rules, and no portion thereof shall be paid or transferred directly or indirectly by way of dividend, gift, remuneration, division, bonus or otherwise by way of profit to any member of the Club. Provided that nothing herein shall prevent the payment of an honorarium to the Editor of the Bulletin in accordance with Rule 32, or reimbursement in good faith of any expenses legitimately incurred by any Member in furthering the activities of the Club, or payment to any Member or non-member for any professional services rendered to the Club, or for materials or other services supplied.

DISTRIBUTION OF PROPERTY ON DISSOLUTION

45. If upon winding up or dissolution of the Club there remains, after satisfaction of all debts and liabilities, any property whatsoever, the same shall not be paid or distributed amongst Members

of the Club, but shall be given or transferred to some charitable institution having objects similar to the objects of the Club, such institution to be determined by Members at or before the time of disssolution, or in default therof by a Judge of the High Court having jurisdiction in regard to charitable funds and in default of such determination, to some ornithological charitable object.

INTERPRETATION

46. "Member" means a Member of the Club, unless the context otherwise requires.

47. "Special Resolution" means a resolution passed by a majority of not less than two-thirds of the votes cast at an Annual or Special General Meeting for which due notice in accordance with Rules 29, 30 or 40, as appropriate, had been given specifying the Resolution as a Special Resolution.

CLUB NOTES

The 896th meeting of the Club was held on Tuesday 31 October 2000, at 6.45 pm, following the Special General Meeting. 27 Members and 10 guests attended.

Members present were: The Rev. T.W. GLADWIN (*Chairman*), Miss H. BAKER, P.J. BELMAN, Cdr M.B. CASEMENT RN, Dr R.J. CHANDLER, Professor R.A. CHEKE (*Speaker*), Dr W.H. DAVISON, A. GIBBS, F.M. GAUNTLETT, D. GRIFFIN, C.A.R. HELM, Dr J.P. HUME, G.P. JACKSON, R.H. KETTLE, Dr C.F. MANN, D.J. MONTIER, Mrs A.M. MOORE, R.G. MORGAN, P.J. OLIVER, Dr R.P. PRŶS-JONES, N.J. REDMAN, R.E. SCOTT, P.J. SELLAR, Dr D.W. SNOW, C.W.R. STOREY, N.H.F. STONE and Dr D.H.THOMAS.

Guests attending were: R. ALLEN, Mrs C.R. CASEMENT, Dr J.A. COLES, T. COLES, Mrs M.H. GAUNTLETT, Mrs J.M. GLADWIN, Mrs M. MONTIER, P.J. MOORE, R.J. PRYTHERCH, and Mrs S. STONE.

At the invitation of the Chairman, Mrs Amberley Moore gave a brief account of the reception held at Cambridge to mark the publication of the fourth of the Club's series of Occasional Publications. C.W.Benson's *Type Specimens of Bird Skins in the University Museum of Zoology, Cambridge, United Kingdom* was published in December last year in association with University Museum of Zoology at Cambridge.

Con Benson was a member of the Club, he became Editor of the *Bulletin* from 1969 to 1974, and had contributed over 130 papers to it from 1936 until his death in 1982. His association with Cambridge began when he was invited to curate the ornithological collections held in the U.M.Z.C. on his retirement, after 33 years, from the Overseas Civil Service in East Africa. He prepared the catalogue of type specimens during this time at Cambridge, but sadly he was not able to complete the final draft, or to see it published.

To celebrate the long awaited publication Professor Michael Akam F.R.S., Director of the U.M.Z.C., hosted a reception on Tuesday 10 October 2000, for past and present staff of the Museum, and for members of the Club who had been concerned with the preparation of the manuscript for press. Julian Hume, Amberley Moore and Robert Prŷs-Jones attended as members of the Club. The reception gave the opportunity to thank all those who had helped in the publication and it was particularly pleasing that Miss Rosemary Benson and Mrs Diana Chamberlain, daughters of Con and Molly Benson, were able to be present for the occasion.

After dinner, the meeting was addressed by Professor Robert A. Cheke on *Aspects of the Biology of Sunbirds*. His talk was based on a forthcoming book *Sunbirds: a Guide to the Sunbirds, Flowerpeckers, Spiderhunters and Sugarbirds of the World*, co-written with Dr Clive F. Mann and illustrated by Richard Allen, both of whom were at the meeting, to be published by Christopher Helm early in 2001. Current classifications of the Nectariniidae included the sugarbirds in the subfamily Promeropinae with the Nectariniinae, comprising the flowerpeckers in the tribe Dicaeini and the sunbirds and spiderhunters in the Nectariniini. The false sunbirds or sunbird-asities of Madagascar, *Neodrepanis* spp., which had been included within the Nectariniidae by Delacour (1944), were now excluded. Delacour had reduced the sunbirds and spiderhunters to the four genera *Anthreptes, Nectarinia, Aethopyga* and *Arachnothera*, but Irwin (1999) had recently revised the family and recognised the four genera above plus *Deleornis, Anabathmis, Dreptes, Anthobaphes, Cyanomitra, Chalcomitra, Leptocoma, Hedydipna, Cinnyris* and *Hypogramma*. To these were now added *Chalcoparia* and *Drepanorhynchus*. Illustrations of representatives of these genera and sonograms of their vocalizations were presented, together with information on tongue structures in support of the new generic groupings.

Co-adaptations between sunbirds and their principal food-plants were illustrated and discussed in the context of pollination and ecosystem maintenance, mostly with examples from the African continent. The habit of many species to "rob" nectar by piercing flowers and bypassing their pollen-bearing parts was also described and illustrated. Aspects of the breeding biology of sunbirds, including the diversity of their nest shapes and the materials used to construct them, a few examples of promiscuous behaviour, and brood parasites were described. In conclusion, some observations were made on the physiology, blood parasites, economic importance and conservation of sunbirds.

References:

Delacour, J. (1944) A revision of the Family Nectariniidae (Sunbirds) *Zoologica: New York Zoological Society* 29:17-38.

Irwin, M. P. S. (1999) The genus *Nectarinia* and the evolution and diversification of sunbirds: an Afrotropical perspective. *Honeyguide* 45: 45-58.

Members present warmly applauded this very scholarly presentation, and concluded the lively discussion period wishing the speaker and his co-authors every success with the eagerly awaited publication of this important book.

The 897th meeting of the Club was held on Tuesday 28 November 2000, at 6.15 pm. 21 Members and 9 guests attended.

Members present were: The Rev. T.W. GLADWIN (*Chairman*), Sir David BANNERMAN Bt., P.J. BELMAN, D.R. CALDER, Dr M.J. CARSWELL, Cdr M.B. CASEMENT RN, Professor R.A. CHEKE, Dr. R.A.F. COX, D. GRIFFIN, Dr C.F. MANN, D.J. MONTIER, R.G. MORGAN, Dr R.P. PRŶS-JONES, N.J. REDMAN, Dr D.E. POMEROY (*Speaker*), R.E. SCOTT, P.J. SELLAR, S.A.H. STATHAM, N.H.F. STONE, Dr D.H. THOMAS and M.W. WOODCOCK.

Guests attending were: Lady BANNERMAN, Mrs C.R. CASEMENT, J.H.W. CHITTY, Professor J.E. COOPER, Mrs J.M. GLADWIN, Mrs S. GRIFFIN, Mrs M. MONTIER, Ms J.M. SCHULZ and Mrs B.J. WOODCOCK.

Request for information on Vultures. Before the formal lecture, Professor John Cooper made a brief announcement: The decline in India of vultures, especially *Gyps* species, has caused considerable concern; if an infectious disease is involved, this may spread to *Gyps* vultures in other parts of the world. A project has therefore started in East Africa with the aim of monitoring vulture populations and studying factors that could contribute to a reduction in their numbers. At the same time, data on the health and diseases of both free-living and captive vultures in Europe and elsewhere is being sought in order to build up a database for future reference in these and other studies. Please contact: Prof. John E. Cooper, DTVM, FRCPath, FIBiol, FRCVS, Wildlife Health Services, PO Box 153 Wellingborough, Northants NN8 2ZA UK. Email: NGAGI@compuserve.com.

The Hon. Secretary announced the recent death of D.A. Holmes, (Member 1973-2000). Derek had worked in SE Asia for over 30 years, and was widely recognised for his bird identification skills, and his contribution to conservation. He was the main force behind the Indonesian journal "*Kukila*" and will be sorely missed.

Dr Derek Pomeroy then gave a presentation about the forthcoming *Bird Atlas of Uganda*, which is being sponsored by the BOC, together with the BOU and support from the RSPB and other organisations. The joint authors are Margaret Carswell, Derek Pomeroy, Jake Reynolds and Herbert Tushabe, the first two being members of the Club.

The following is a brief synopsis: -

Atlases, so common in Europe, are relatively scarce in the tropics. With the publication of the Uganda atlas, the coverage for the whole of the Afrotropical region will still be less than a third. And the long-term prospects of a high-resolution atlas for the whole region are not helped by their variety of formats and contents; for example, some indicate breeding whilst others (including that for Uganda) do not.

Uganda's birds have been recorded over the past 100 years or so by many people, although the number of recorders in the country at any one time has been relatively low. Many birders, both residents and visitors, have favoured visiting the same places. Consequently, although nearly 50,000 records are available for the Uganda atlas, they are distributed rather unevenly within the country.

This led the authors to devise a means of predicting areas of the country where suitable habitats of a species were likely to be found - and hence the species itself - even though many of the areas had not been visited. Many computer models were tried, and eventually one based upon rainfall and vegetation was selected as best. This used data from all the points where a species had been recorded, and used these to locate all other places in the country with the same combinations of rainfall and vegetation type. However, the model could only be applied to species with enough records; and waterbirds were omitted because so many have linear distributions, for example along shorelines of the large lakes.

The atlas maps show the predicted areas, together with the actual records. This improves the overall representation of species' distributions, but it works better for some species than others. The predicted areas for all species are, in effect, hypotheses waiting to be tested.

In compiling the atlas data, big differences were found in the proportions of recent compared to older (post-1990) records for different groups of species. For example, residents had higher proportions than Palaearctic migrants; and of the latter, less common species fared worst. This observation, although preliminary, suggests a topic deserving closer attention.

Uganda has an extensive system of National Parks, as well as Forest and other Reserves, but very limited resources mean that, in practice, some are better managed than others. Computerisation of records helps in conservation planning; for example, in the prediction of areas which are likely to be most significant for Red Data species. Armed with such information, it is possible to press for their better conservation.

The talk concluded with a brief discussion and question period.

ANNUAL GENERAL MEETING

The Annual General Meeting of the British Ornithologists' Club will be held in the Sherfield Building, Imperial College, London SW7 at 6.00 pm on Tuesday 1 May 2000.

AGENDA

1. Minutes of the 2000 Annual General Meeting (see *Bull. Br. Orn. Cl.* 120(2): 144-145)
2. Chairman's report

3. Report of the Committee and Accounts for 2000 (both to be distributed at the meeting)
4. The *Bulletin*
5. The election of Officers. The Committee proposes that the following should be elected:
    - (i) Dr C F Mann as Chairman *vice* Revd T W Gladwin
    - (ii) Mrs M N Muller *vice* Mr D Griffin
    - (iii) Mr P G W Salaman *vice* Mr N J Redman
    - (iv) Mr D J Montier be re-elected as Hon. Treasurer
    - (v) Commander M B Casement, OBE, RN be re-elected as Hon. Secretary
6. Any other business of which notice shall have been given in accordance with Rule (12)

BOC-ONLINE

The British Ornithologists' Club now has its own website. For information and news log on to:
www.boc-online.org

BOOK RECEIVED

del Hoyo, J., Elliot, A., & Sargatal, J. (eds). 1999. *Handbook of the Birds of the World.* Vol 5, Barn-owls to Hummingbirds. Pp 759, 75 colour plates, c.400 colour photographs, 756 distribution maps, *c*.8,000 bibliographical references. Lynx Edicions, Barcelona. ISBN 84-87334-25-3. £110.

Lynx Edicions, in conjunction with BirdLife International, have produced another marvellous, comprehensive and consistent volume in the HBW series. With this volume, nearly half of the families in the class Aves have now been covered within the first seven years of publication of the project (the whole targeted for completion within the next ten years).

Vol. 5 begins with an extensive Foreward, by N. J. Collar, on Risk Indicators and Status Assessment in Birds. Risk Indicators are discussed in relation to distribution, population and ecology; Status Assessment refers to the new IUCN criteria (evaluation of probability of a taxon becoming extinct), problems of data quality and consistency of judgement, and future prospects including the survival of protected areas. The Introduction to this volume briefly mentions the overall concept of the project as detailed in Vol. 1 of the series, together with additional points of interest given in Vols. 2-4, and also to BirdLife's rapidly expanding database which permits an increasingly accurate status assessment for every bird species (as outlined in the Foreward).
This volume details the three Orders Strigiformes, Caprimulgiformes and Apodiformes, classified into the families Barn-owls, Typical owls, Oilbird, Owlet - nightjars, Frogmouths, Potoos, Nightjars, Swifts, Tree-Swifts and Hummingbirds. The extensive family accounts are described under the headings of Systematics, Morphological Aspects, Habitat, General Habits, Voice, Food and Feeding, Breeding, Movements, Relationships with Man, Status and Conservation, followed by a General Bibliography. The individual species accounts following a particular family account include notes on taxonomy, distribution (including maps), status and conservation, and a further particular bibliography. The volume includes the recently erected species *Otus alius* (Nicobar Scops-owl) (*Bull. Brit. Orn. Cl. 118(3): 141-153)* and *Otus collari* (Sangihe Scops-owl) (*Bull. Brit. Orn. Cl. 118(4): 204-217).*

As in previous volumes, the editors acknowledge the great importance of the extensive assistance given to the project by many museums, libraries, sound archives and individuals. All the *c*.8,000 references indicated throughout the text are also given in full in a General Bibliography at the end of the volume, requiring some 55 pages of text. Weighing in at about 4kg, this volume raises the series weight so far to a healthy 19kg - may your bookshelves never complain!

S J Farnsworth

A new species of Laughingthrush (Passeriformes: Garrulacinae) from the Central Highlands of Vietnam

by Jonathan C. Eames & Charles Eames

Received 21 September 2000

Mount Kon Ka Kinh (14°19'N, 108°24'E) at 1,748 m is the highest point in Gia Lai province and one of the highest mountains in the Central Highlands (Central Highlands is synonomous with Western Highlands, which is a literal translation of the Vietnamese *Tay nguyen*). Central Highlands is itself a misnomer, since the area is composed of two isolated massifs between which lies an inclined plateau, which forms part of the Mekong basin. To the north lies the Kon Tum plateau which extends across *c.* 10,000 km^2 in Kon Tum and Gia Lai provinces, and includes Mount Ngoc Linh, which at 2,598 m is the second highest mountain in Vietnam. To the south lies the Da Lat plateau, which extends across approximately 6,000 km^2, the highest point of which is the outlying Mount Chu Yang Sin (2,244 m). Mount Kon Ka Kinh is located in Kon Ka Kinh Nature Reserve, in the southern part of the Kon Tum plateau and lies 95 km from Mount Ngoc Linh, which is located within the two adjoining sectors of Ngoc Linh Nature Reserve (Figs. 1 and 2).

From the geographical isolation of the mountain, its height and the lack of earlier ornithological exploration, we expected to make interesting findings on Mount Kon Ka Kinh. It was therefore selected for survey as part of an ongoing project between BirdLife International and the Forest Inventory and Planning Institute (FIPI) which aims to ensure that all internationally important areas for biodiversity conservation are included within the revised system of protected areas of Vietnam (Wege *et al.* 1999).

Along the summit ridge of Mount Kon Ka Kinh on 1 April 1999, JCE mist-netted and collected an unfamiliar laughingthrush *Garrulax* sp. Subsequently JCE collected a fledged juvenile on 23 April and mist-netted another adult on 29 April from different sites at the same locality. Examination of holotypes of four races of *Garrulax rufogularis* (*G. r. assamensis*, *G. r. intensior*, *G. r. occidentalis* and *G. r. rufiberbis*) in the American Museum of Natural History, New York, and comparison with skins of six races of *G. rufogularis* (*G. r. rufogularis*, *G. r. assamensis*, *G. r. intensior*, *G. r. occidentalis, G. r. rufiberbis* and *G. r. rufitinctus*), *G. cineraceus* and *G. lunulatus* at The Natural History Museum, Tring, U.K., showed that this bird represents a new distinctive taxon of *Garrulax*, which we name:

Chestnut-eared Laughingthrush
Garrulax konkakinhensis, sp. nov.

Holotype. Deposited at the Natural History Museum, Tring (BMNH No. 1999.31.1), adult male (gonad condition not noted) collected on Mount Kon Ka Kinh

(14°19'N,108°24'E), Gia Lai province, Vietnam, at *c.* 1,700 m asl. on 1 April 1999 (Plate 1; Figs. 3a-d).

Diagnosis. *Garrulax konkakinhensis* has four unique plumage features that are not shown by any race of *G. rufogularis*. In *G. konkakinhensis*, all the rectrices are tipped white (Fig. 3a); the remiges are bluish grey and lack a black band across them (Fig. 3b); the fore-crown is grey streaked with black and a grey supercilium extends above and behind the eye (Fig. 3c); and the vent is rich buff and extends onto the belly (Fig. 3a). *Garrulax konkakinhensis* additionally shows an extreme degree of chestnut on the ear-coverts (Fig. 3c), an off-white throat, and extensive black tips to the tertials and scapulars. These features are not shown to the same extent, are shown irregularly, or are not shown in similar combination, by *G. rufogularis*. *Garrulax konkakinhensis* most closely resembles *G. rufogularis occidentalis* and *G. r. rufitinctus* in its general plumage pattern but differs from these two taxa in reduced levels of rufous in the plumage. All three taxa share, to a varying extent, chestnut ear-coverts, black on the crown, and the colour of the mantle, wing-coverts and breast. Additionally, *G. konkakinhensis* shares three plumage features with *G. cineraceus* and *G. lunulatus*: white tips to the rectrices, the absence of a black band across the remiges, and the vent and belly are buff.

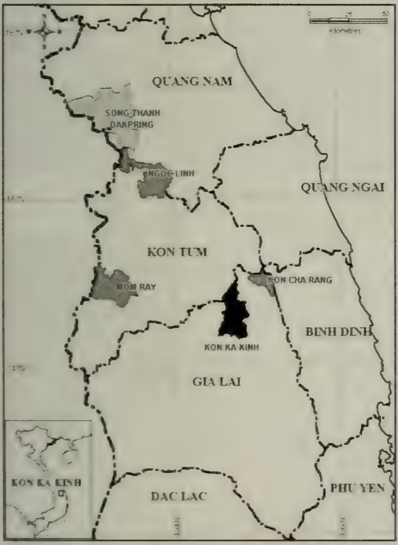
N
kilometres
QUANG NAM
SONG THANH DAKPRING
NGOC LINH
QUANG NGAI
KON TUM
MOM RAY
KON CHA RANG
KON KA KINH
BINH DINH
GIA LAI
KON KA KINH
DAC LAC
PHU YEN
LEGEND
National Border
Provincial Border
Protected Area
Proposed Protected Area
Kon Ka Kinh Nature Reserve

Figure 1. Location of Kon Ka Kinh Nature Reserve

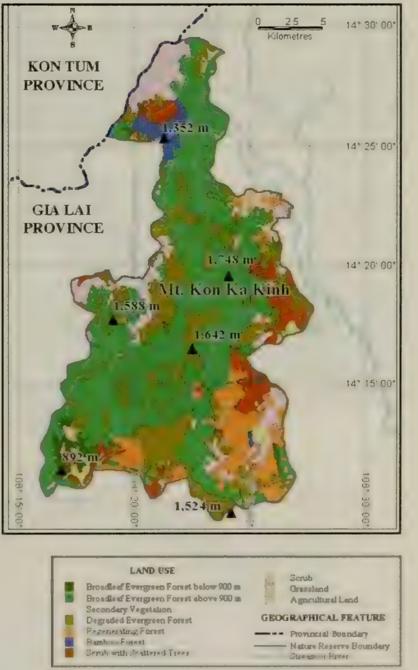
N
W
E
S
0 2.5 5
Kilometres
14° 30' 00"
KON TUM PROVINCE
1,352 m
14° 25' 00"
GIA LAI PROVINCE
1,748 m
14° 20' 00"
Mt. Kon Ka Kinh
1,588 m
1,642 m
14° 15' 00"
892 m
1,524 m
108° 15' 00"
108° 20' 00"
108° 30' 00"
LAND USE
Broadleaf Evergreen Forest below 900 m
Broadleaf Evergreen Forest above 900 m
Secondary Vegetation
Degraded Evergreen Forest
Regenerating Forest
Bamboo Forest
Scrub with Scattered Trees
Scrub
Grassland
Agricultural Land
GEOGRAPHICAL FEATURE
Provincial Boundary
Nature Reserve Boundary
Stream or River

Figure 2. Land-use in Kon Ka Kinh Nature Reserve

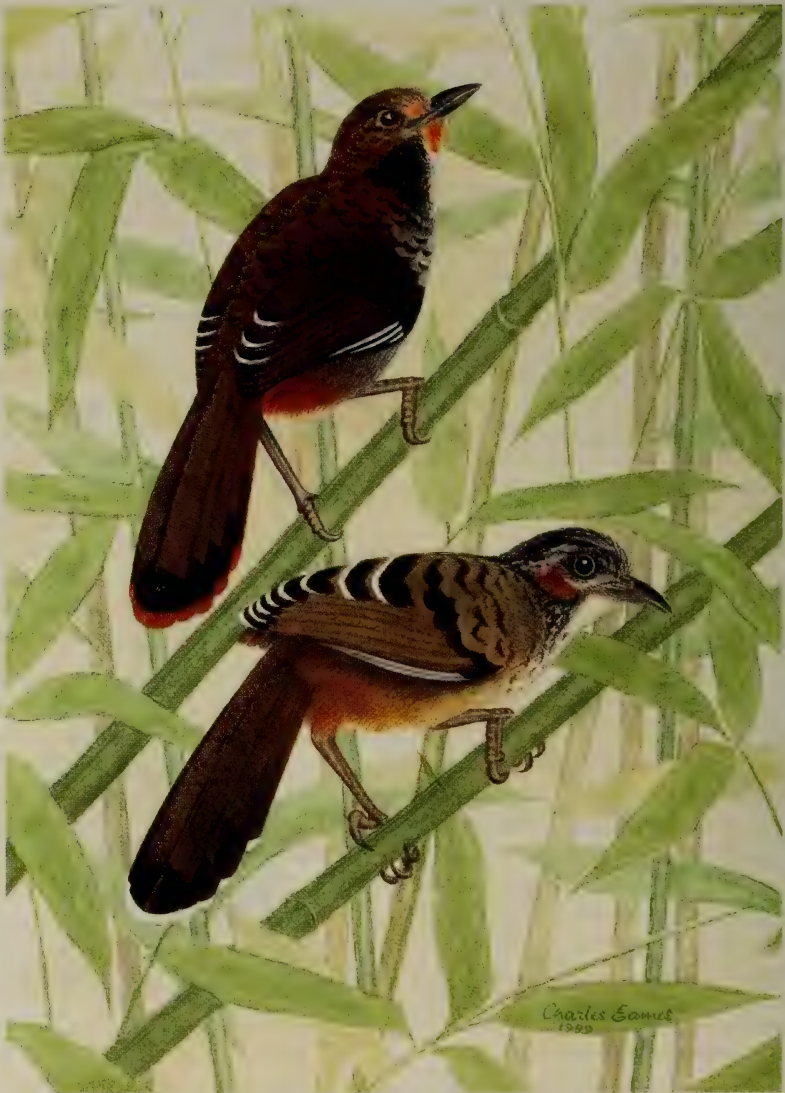

Plate 1. Holotype adult male Chestnut-eared Laughingthrush *Garrulax konkakinhensis* (lower) and Rufous-chinned Laughingthrush *Garrulax rufogularis intensior* (upper). Original watercolour painting by Charles Eames.

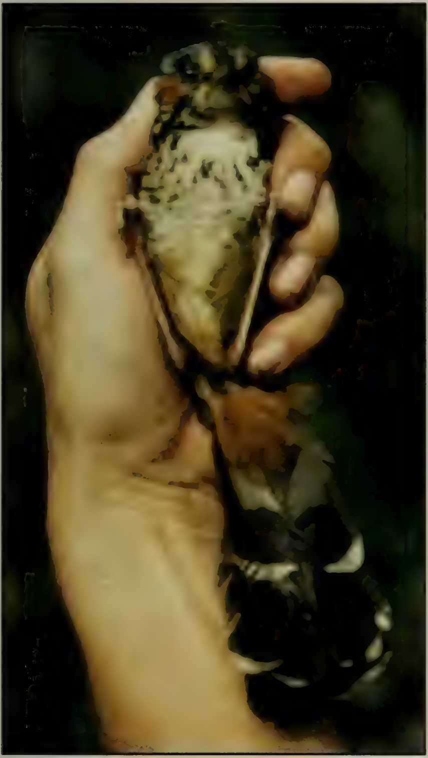

Figure 3a

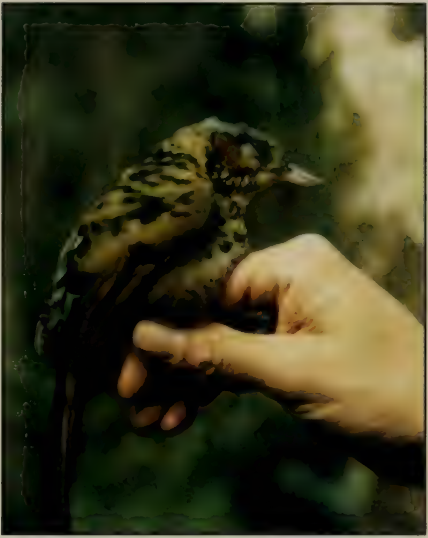

Figure 3b

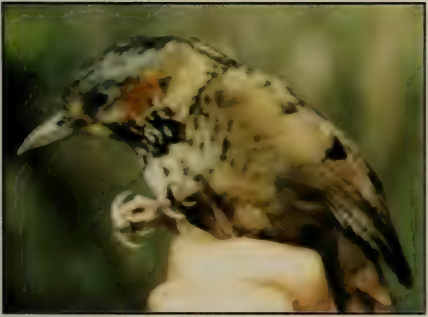

Figure 3c

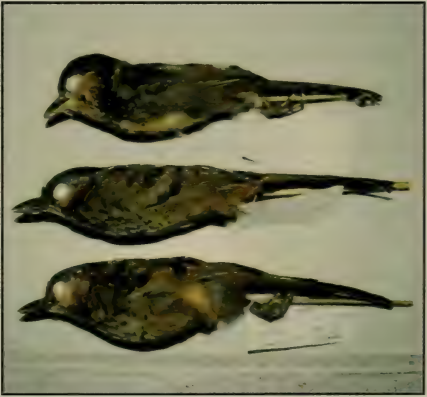

Figure 3d

Figure 3a. Ventral view of the holotype of Chestnut-eared Laughingthrush *Garrulax konkakinhensis* adult male, trapped and photographed on the summit ridge of Mount Kon Ka Kinh, Gia Lai province, Vietnam, on 1 April 1999. Figure 3b. Profile of the holotype. Figure 3c. Head detail of the holotype. Photographs by J. C. Eames. Figure 3d. Profiles of the holotype (middle) and two paratypes (juvenile top and female bottom) of Chestnut-eared Laughingthrush *Garrulax konkakinhensis*

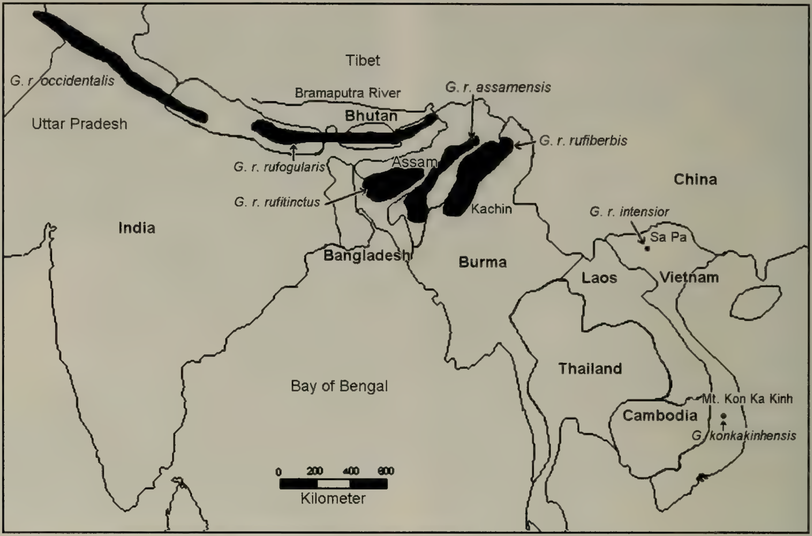
Tibet
G. r. occidentalis
Bramaputra River
G. r. assamensis
Uttar Pradesh
Bhutan
G. r. rufiberbis
G. r. rufogularis
Assam
China
G. r. rufitinctus
Kachin
G. r. intensior
India
Sa Pa
Bangladesh
Burma
Laos
Vietnam
Thailand
Bay of Bengal
Mt. Kon Ka Kinh
Cambodia
G. konkakinhensis
0 200 400 600
Kilometer

Figure 4. The approximate geographical ranges of *Garrulax rufogularis* and *G. konkakinhensis*

In the following description a quantitative judgment of colour has been made, wherever possible, using Smithe (1975) whose colour descriptions and numbers appear in parentheses following our own subjective determination.

The feathers of the forehead are grey (Medium Neutral Gray 84) with black (Jet Black 89) tips and central shaft streaks. The black tips and central shaft streaks become broader on the crown and nape. The grey (Medium Neutral Gray 84) supercilium merges with the sides of the crown, extending from above to behind the eye. The ear-coverts are chestnut (Kingfisher Rufous 240). A black (Jet Black 89) malar stripe extends in an unbroken line from the gape, bordering the chestnut ear-coverts and merges with the black feathers on the sides of the throat. The lores are pale buff (Pale Pinkish Buff 121D), with blackish feathering immediately in front of the eye. The chin and throat are off-white, faintly tinged buff (Pale Pinkish Buff 121D), grading to a slightly richer buff on the sides of the chin and throat. The feathers of the chin and throat irregularly show faint blackish centres, which are narrowly fringed black, which extend onto the sides of the throat and neck. The upper breast is pale grey (Glaucous 80) washed buff (Light Drab 119C) and is narrowly fringed black and with narrow black central shaft streaks. The belly and flanks are pale orange-buff (Clay Color 26) becoming rich buff (Antique Brown 37) on the vent. The mantle, and lesser, median and greater wing coverts are olive-buff (Dark Drab 119B) becoming a warmer brown (Raw Umber 123) on the back, rump and scapulars, and are fringed black, broadly so on the mantle, greater coverts and scapulars. The upperparts are thus boldly and irregularly barred. The alula is black but with a grey basal half to the outer web. The primary coverts are blackish-brown (Sepia 119). The outer webs of the outermost seven primaries are fringed bluish-white, forming an indistinct pale wing panel. This bluish white panel grades to olive-brown (Ground Cinnamon 239) on the inner primaries and secondaries, including the tertials. The inner webs of the primaries and secondaries are light blackish-brown (Blackish Neutral Gray 82). The tips of the outer webs of the innermost three primaries and all the secondaries are black with a narrow white fringe. This pattern gradually becomes more extensive across the secondaries so that tertials are very broadly tipped black with pronounced white fringes. The upper tail coverts are rufous-brown (Antique Brown 37). There are 12 rectrices which are mid-brown (Raw Umber 23) and which grade to a less rufous and more olive brown towards their tips. All rectrices have very broad sub-terminal black bands and are broadly tipped white. On the outermost two pairs, the black extends almost halfway along their entire length, whereas on the innermost pair, the black extends for 20 mm. The underside of the tail is blackish-brown (Blackish Neutral Gray 82) and all feathers are broadly tipped white. Bare parts: bill - upper mandible dark horn with a pale horn lower mandible; legs flesh horn with yellow soles; iris brown.

Measurements of type (mm): maxilla (tip to skull) 24.5; tarsus 40; wing (max. chord) 99; tail 123.

Paratypes. Two additional specimens were collected on Mount Kon Ka Kinh and are currently held at BirdLife International in Hanoi (Fig. 3d). A female collected on 29 April 1999 at *c.* 1,650 m, No.1945.2.11; and a juvenile male collected on 23 April 1999 at *c.* 1,600 m, No.1945.2.12. Their measurements (mm) are, respectively: maxilla 23.5, 21.5 (tip to skull); tarsus 41, 39; wing (max. chord) 98, 95; tail 116, 112. Specimen No. 1945.2.11 had a dark brown iris; bill with a dark horn upper mandible and a pale horn lower mandible; legs flesh horn. Specimen No. 1945.2.12 had a bill with a dark horn upper mandible and a pale horn lower mandible; legs flesh horn. Iris colour was unrecorded. The condition of the gonads in these two specimens was not noted.

Paratype variation. The adult female appears very similar to the male holotype but shows slightly broader white tips to the tertials and buffish tips to the outer webs of the innermost primary and the secondaries. The tips to the underside of the rectrices are off-white. The fledged juvenile shows characteristically soft and under-developed plumage and a black crown with only a small amount of grey evident behind the eye. No other significant plumage differences are apparent with the holotype (Fig. 3d).

Ecology and behaviour. The only field observation relates to a flock of at least three birds from amongst which JCE collected a juvenile male on 23 April 1999 at *c.* 1,600 m. This flock was observed moving rapidly through bamboo undergrowth. On Mount Kon Ka Kinh, *G. konkakinhensis* occurs sympatrically with Red-tailed Laughingthrush *G. milnei* from *c.* 1,600 m to the summit. *Garrulax konkakinhensis* may occur at lower elevations but determination of this was difficult to verify because the species was not heard singing or indeed making any vocalizations during March and April. Pairs of *G. milnei* were recorded singing and holding territory during the same period. The lower altitude limit of *G. konkakinhensis* has not been determined; if it extends to *c.* 1,500 m it would overlap the range of Black-hooded Laughingthrush *G. milleti*, which was recorded commonly up to *c.* 1,500 m. The closely related *Garrulax rufogularis* is noted to also be a skulker, more often heard than seen and doubtless overlooked. *Garrulax rufogularis* keeps in pairs or small family parties, haunting low bushes and feeding mostly on the ground. It takes to the wing with reluctance and flight is weak and ill-sustained (Ali & Ripley 1972).

Habitat. On Mount Kon Ka Kinh, *G. konkakinhensis* was found in the undergrowth of primary upper montane evergreen forest (as defined by Whitmore 1992). The holotype was collected from the narrow summit ridge where bamboos, including *Arundinaria baviensis* and *Schizostachyum* sp., were predominant in the undergrowth. Both the holotype and the type series were collected from upper montane evergreen forest, dominated by broadleaf tree species from the families Fagaceae, Lauraceae, Magnoliaceae, Hamamelidaceae, Theaceae, Ericaceae, Myrtaceae and Araliaceae. This forest was being logged for large, emergent *Fokienia hodginsii* and in many places the canopy was broken and there were many clearings. On Mount Kon Ka Kinh, from *c.*1,600 to the summit at 1,748 m, the forest canopy height was *c.* 10-15 m, with 20 m trees in flatter areas of the summit plateau. In the Indian subcontinent *Garrulax rufogularis* has been noted to occur from 600-1,900 m in dense thickets, scrub jungle, dense undergrowth in oak and rhododendron forest, forest edge and especially secondary growth near cultivation (Ali & Ripley 1972). In northern Vietnam *G. r. intensior* is known to occur from 1,500 m to 2,500 m (Delacour & Jabouille 1931).

Distribution. Garrulax konkakinhensis was discovered on Mount Kon Ka Kinh (Gia Lai province) in the Central Highlands of Vietnam and is currently known only from this site (Figs.1 and 2). It is likely to occur to the north in adjacent Kon Tum province and could conceivably occur in Laos, because forest habitat within the species' altitudinal range extends across the provincial and international borders.
In this context, it is worth mentioning sightings of a laughingthrush, seen in the Phou Ahyon area of south-east Laos between 1,350-1,450 m in May 1996, which showed some similarities to *G. rufogularis* (Duckworth *et al.* 1999). Whilst noting some plumage features which are also shown by *G. konkakinhensis*, the observer noted red remiges and a black wing bar which are absent in this new species. On the basis of these sightings, the species in question was provisionally identified as Spotted Laughingthrush *G. ocellatus* (R. Timmins *in litt.* 1996). In the absence of any voucher specimen, we believe this sight record is best judged as *Garrulax* sp.

Etymology. We name this species after the type locality, Mount Kon Ka Kinh (Figs. 1 and 2). This little-studied area was recently gazetted as a nature reserve and this is the first bird species to be named for the site.

Taxonomic considerations

Within the genus *Garrulax*, there are several species groups that are here defined as monophyletic subsets of species (Amadon & Short 1992). An example of a species group within this genus are *G. erythrocephalus*, *G. ngoclinhensis* and *G. yersini* (Eames *et al.* 1999). *Garrulax konkakinhensis* comprises a species group together

TABLE 1

Plumage features of *Garrulax rufogularis* and *G. konkakinhensis*

Taxon	*Chin and throat*	*Crown*	*Mantle*	*Breast*	*Ear-coverts*	*Tail tip*	*Vent*	*Wing panel*
G. rufogularis rufogularis	Orange brown chin (sometimes absent); throat grey-white	Black, occasionally olive-brown tipped black	Olive-brown scaled black	Grey or grey and olive, scaled black	Black, black with pale grey centres sometimes with olive-brown admixed	Orange-brown (Tan)	Cinnamon	Present
G. r. occidentalis	Orange-brown chin and throat; sometimes throat off-white	Black, occasionally pale olive-brown tipped black	Pale olive-brown scaled black	Grey or grey and olive, scaled black	Chestnut-orange	Orange-brown (Tan)	Orange-brown	Present
G. r. assamensis	Orange-brown	Black	Olive-brown, scaled black	Grey-buff narrowly scaled black	Olive-brown tipped black	Orange-brown	Dark cinnamon	Present
G. r. rufitinctus	Orange-brown	Olive-brown broadly scaled black	Olive-brown scaled black	Grey-buff narrowly scaled black	Dull chestnut-orange	Orange-brown (Tan)	Orange-brown	Present
G. r. rufiberbis	Grey-white	Black	Olive-brown, scaled black	Grey, scaled black	Olive-brown tipped black	Orange-brown (Tan)	Dark cinnamon	Present
G. r. intensior	Orange-brown chin; white throat	Brown, brown tipped black or black	Dark brown scaled black	Dark grey heavily scaled black	Black or black admixed with olive-brown	Orange-brown (Tan)	Very dark Cinnamon	Present
G. konkakinhensis	Off white, slightly buff at edge, fine black shaft streaks	Grey fore-crown tipped black; hind-crown black	Olive-brown scaled black	Buff washed olive-grey, narrowly fringed black with black central shaft streaks	Chestnut	White	Dark buff	Absent

with three other Sino-Himalayan species, *G. rufogularis*, *G. cineraceus* and *G. lunulatus*. Here we present the case for affording specific rank to *G. konkakinhensis* based on its morphology in comparison with *G. rufogularis*, with which it shows a strong similarity. Based on plumage, *G. cineraceus* and *G. lunulatus* show far fewer similarities and, by analogy, would be placed further away in the phylogeny.

Deignan (1964) recognized seven subspecies within *Garrulax rufogularis,* distributed as follows: *G. r. occidentalis* extends through the Himalayas from Pakistan eastward to north-western Uttar Pradesh in India; *G. r. grosvenori* is known from Rekcha, Dailekh District in west Nepal; *G. r. rufogularis* occurs from central Nepal eastward, through Bhutan into the Indian state of Assam, north of the River Brahmaputra; *G. r. assamensis* is known from Margherita in north-eastern Assam; *G. r. rufitinctus* is known from the hill tracts of Assam south of the Brahmaputra River; *G. r. rufiberbis* is known from Kachin State in northern Burma, and *G. r. intensior* is known only from its type locality at Sa Pa in north-western Vietnam (Fig. 4). Subsequently, Ripley placed *G. r. grosvenori* in synonymy with *G. r. occidentalis* and therefore this form has not been considered further in this review (Ripley 1982). The distributions of these taxa are imperfectly known and the species has been predicted to occur in the Chumbi valley (Yadong) and in the Medog area of south and south-east Xizang province, China (Tibet) (MacKinnon & Phillipps 2000). On 11 March 1999, the species was observed at Ruili, in south-west Yunnan province (China) (Dymond & Thompson 2000).

Throughout its range, *G. rufogularis* is very variable, with variation in plumage characters in some cases clinal and in others abrupt and mosaic. All seven subspecies of *G. rufogularis* show rufous tips to the rectrices, a black wing panel across the remiges and black on the forecrown to a variable degree. Furthermore, all subspecies show a variable extent of orange on the chin and throat. For example, the holotype of *G. r. rufiberbis* shows only a small extent of orange on the chin, whereas in *G. r. occidentalis*, *G. r. rufitinctus* and *G. r. assamensis* the orange is more extensive. Other characteristics, such as the colour of the upperparts, which vary from light

TABLE 2

Summary of plumage features of *Garrulax konkakinhensis*, *G. rufogularis*, *G. cineraceus* and *G. lunulatus*

Taxon	*Wing panel*	*Orange-brown tips to rectices*	*Grey forehead and supercilium*	*Buff vent and belly*
Garrulax konkakinhensis	-	-	+	+
G. rufogularis rufogularis	+	+	-	-
G. r. occidentalis	+	+	-	-
G. r. assamensis	+	+	-	-
G. r. rufitinctus	+	+	-	-
G. r. rufiberbis	+	+	-	-
G. r. intensior	+	+	-	-
G. cineraceus	-	-	-	+
G. lunulatus	-	-	-	+

TABLE 3

Comparison of biometrics amongst *Garrulax rufogularis* and *G. konkakinhensis* based on specimens in The Natural History Museum, Tring. In each cell, the biometric range is given, followed by the mean, standard deviation and finally the sample size.
All measurements are in mm.

Taxon	*Maxilla (tip to skull)*	*Tarsus*	*Wing (max. chord)*	*Tail*	*Sex*
G.rufogularis rufogularis	24,25,24,24,24.5, 23.,24.5,22,25,22 (23.9) {1.081} [10]	33.5,36.5,36,34.5,38, 36,37,35,36.5,36.5 (36.0) {1.301}[10]	95,95,92,98,94,93, 96,91,95,89 (93.8) {2.616} [10]	106,110.5,108,111,104, 105.5,113,100.5,106,102.5 (106.7) {3.945}[10]	2m, 8?
G. r. intensior	26,25,24.5 (25.2) {0.764}[3]	38.5,35,37 (36.8) {1.756}[3]	97,98,95 (96.7) {1.528} [3]	110,113,110 (111.0){1.732} [3]	2m,1f
G. r. rufiberbis	24.5 (24.5) [1]	34 (34.0) [1]	93 (93.0) [1]	101 (101.0) [1]	1m
G. r. occidentalis	23,22,22,22,23.5, 24,23, 24,24,22.5 (23.0) {0.85}[10]	33.5,36,33,34,35.5, 34,34,36,34,34.5 (34.5) {1.039}[10]	93,96,99,92,91,91, 90, 98,94,93 (93.7) {3.057} [10]	107.5,113,106,111,117, 106,115,115,110,109 (111.0) {3.933}[10]	2f,1m,7?
G. r. rufitinctus	23.5, broken,18.5 (21.0) {3.536}[2]	36,37,34 (35.7) {1.528}[3]	95,92,86 (91.0) {4.583} [3]	116,113,98 (109.0) {9.644}[3]	1f,2?
G. konkakinhensis	24.5,23.5,21.5 (23.2){1.528} [3]	40,41,39 (40.0) {1.000}[3]	99,98,95 (97.3) {2.082}[3]	123,116,112 (117.0) {5.568}[3]	2m,1f

olive-brown to dark brown, and the colour of the vent, which varies from cinnamon to a dark cinnamon, show clinal variation. Upperpart and vent colouration become progressively darker and browner as one moves eastwards and in the easternmost *G. r. intensior* black and dark browns show their greatest expression. Other features, such as the chestnut ear-coverts, show a mosaic expression since only two of the subspecies of *G. rufogularis*, which do not all have allopatric ranges (*G. r. occidentalis* and *G. r. rufitinctus*), show this feature. Thus, the westernmost form, *G. r. occidentalis,* bears the closest resemblance to *G. konkakinhensis* in the extent of orange on the ear-coverts and in general plumage colouration, whereas *G. r. intensior*, which has the closest geographic proximity, bears the least resemblance to *G. konkakinhensis*. Table 1 details the general morphology of all seven forms of *G. rufogularis,* and *G. konkakinhensis*, based on an examination of four holotype specimens and additional skins of *G. rufogularis* taxa in the American Museum of Natural History and at The Natural History Museum. Although bearing strong resemblance to the western races of *G. rufogularis*, *G. konkakinhensis* is morphologically sufficiently distinct to warrant specific treatment because it shows four unique plumage features that are not shown by any subspecies of *G. rufogularis.* Table 2 summarises these features, and also includes the related *G. cineraceus* and *G. lunulatus*. The possession of white tips to the rectrices, the absence of a black band across the remiges, and a buff vent and belly are plumage features that *G. konkakinhensis* shares with *G. cineraceus* and *G. lunulatus*, indicating a shared ancestry with these taxa. The distinctive morphology of *G. konkakinhensis* and *G. rufogularis* indicates that the level of genetic variation between them is greater than that among the seven described subspecies of *G.*

rufogularis. In comparison with the *G. rufogularis* taxa in Table 3, there is overlap in bill, tail and wing lengths but tarsus, wing and tail lengths are, on average, longer. The tarsus measurements for *G. konkakinhensis* lie beyond the range of *G. rufogularis*. Although the sample sizes are small, analysis comparing *G. konkakinhensis* with *G. rufogularis* (all five subspecies lumped together) using one-way analysis of variance, shows there is no significant difference in maxilla length ($p=0.44$) or wing length ($p=0.06$), but tarsus length ($p<<0.01$) and tail length ($p=0.01$) are significantly different.

Under the phylogenetic species concept, a species is defined as an irreducible (basal) cluster of organisms, diagnosably distinct from other such clusters and within which there is a parental pattern of ancestry and descent (Cracraft 1989). The possession of only one diagnostic character would have been sufficient for the new taxon to be considered a species under the phylogenetic species concept and, with four, *G. konkakinhensis* easily meets that definition. We prefer, however, to approach the question of appropriate taxonomic rank for this taxon using a refined version of the biological species concept. Under the biological species concept, species are systems of populations: the gene exchange between these systems is limited or prevented by a reproductive isolating mechanism or perhaps by a combination of several such mechanisms (Dobzhansky 1937). Applying the biological species concept, *G. rufogularis* is considered to comprise a single species by Deignan (1964), Sibley & Monroe (1990) and Inskipp *et al*. (1996). For birds, the biological species definition has recently been broadened to the comprehensive biological species concept (CBSC). Under the CBSC, "a bird species is a system of populations representing an essentially monophyletic, genetically cohesive, and genealogically concordant lineage of individuals that share a common fertilization system through time and space, represent an independent evolutionary trajectory, and demonstrate essential but not necessarily complete reproductive isolation from other such systems" (Johnson *et al.* 1999).

The taxonomic ranking of allopatric populations of taxa has been a long recognized problem for the obvious reason that no test of sympatry is possible. This is indeed the case with *G. konkakinhensis* and *G. rufogularis intensior* which are only currently known from their respective type localities that are *c.* 1,000 km apart (Fig.4). Given that both localities are situated amongst more extensive forested montane areas, it seems unlikely that these taxa are confined to their type localities and that their respective ranges extend over wider areas. However, we presently lack sufficient data on the extent of their geographic ranges to demonstrate whether they may be sympatric or parapatric. Their taxonomic status must, therefore, be considered as if they were allopatric. Within the genus *Garrulax*, species have evolved unique combinations of wing and tail markings that seem likely to act as signaling mechanisms to facilitate recognition by members of the same species. The species in question, *G. konkakinhensis* and *G. rufogularis*, have each evolved a distinctive and unique tail and wing pattern. These features demonstrate (but do not prove) essential reproductive isolation, whether their ranges prove subsequently to be allopatric, parapatric or sympatric. Applying the CBSC, this is a key defining trait of specific rank.

In conclusion, our case for the validity of *G. konkakinhensis* as a good biological species rests on its distinctive morphology. Its reproductive isolation from *G. rufogularis* can only be inferred on the basis of our current knowledge. However, given that *G. konkakinhensis* exhibits a range of plumage features, including those which may assist in species recognition, to have described *G. konkakinhensis* as a mere subspecies of *G. rufogularis*, would have added another and significant level of variability to a highly variable taxon, which itself requires further taxonomic revision.

Conservation

Kon Ka Kinh Nature Reserve was included on a list of proposed protected areas decreed by the government of Vietnam in 1986. This decree indicated the intent of the government to establish protected areas at a number of sites without defining exact areas or boundaries and without specifying a timescale. In 1999, BirdLife International and FIPI began researching a project investment document for the establishment of a nature reserve at this site which was subsequently published in English (Le Trong Trai *et al.* 2000). The forests within the proposed Kon Ka Kinh Nature Reserve comprise a mosaic of primary and seral forest formations, and, on the evidence of shifting cultivation, indicate a long history of human utilization (Fig. 2). During fieldwork in 1999, there was much evidence of recent and continuing commercial logging of *Fokienia hodginsii*. It is difficult to imagine that this was occurring without the compliance of the provincial authorities. Following consultation with Gia Lai Provincial People's Committee, their endorsement was gained for the establishment of a 41,710 ha nature reserve (Anon. 1999). This proposal has now been endorsed by central government. The boundary includes the three sites on Mount Kon Ka Kinh where the holotype and paratypes of *Garrulax konkakinhensis* were collected. Since the proposed boundary of the protected area encompasses extensive areas at higher elevation, it is felt that, if successfully established, the future of this population of *G. konkakinhensis* will be secured. The current absence of data on population size, trend and distribution, indicate that *Garrulax konkakinhensis* must be categorised as Data Deficient (IUCN 1994). The species is currently known only from a narrow altitudinal range at a single site, so efforts should be directed to determining its conservation status. Its occurrence in logged forest indicates some tolerance for disturbed habitat.

Acknowledgements

In Hanoi, we thank Dr Nguyen Huy Phon, Vice-director of FIPI, Dr Nguyen Huu Dong, Director of the Forest Resources and Environment Centre of FIPI. At the Ministry of Agriculture and Rural Development, we thank Le Van Minh Director of the International Cooperation Department, Dr Nguyen Ba Thu, Director of the Forest Protection Department, and Tran Quoc Bao, Head of the Nature Conservation and Environment Division. In Gia Lai province we thank Le Vi Ha, Chairman of the provincial people's committee, and Tran Quang Khanh, Director and Tran Van

Hieu, Vice-director, of the provincial Forest Protection Department. We would also like to thank the leaders of K'Bang and Mang Yang districts for providing support to us in the field.

In New York, thanks are due to Paul Sweet at the American Museum of Natural History for permitting access to type material of *Garrulax rufogularis*. At The Natural History Museum, Tring, U.K., Dr Robert Prys-Jones permitted access to the bird collection. Further assistance was provided by Mark P. Adams, Frank D. Steinheimer, Harry Taylor and Mrs F. E. Warr. We are grateful for comments made by Dr Sebastian Buckton, Dr Nigel Collar, Edward C. Dickinson, Dr Jon Fjeldså, Dr Frank Lambert, Le Trong Trai, Dr Pamela Rasmussen, Craig R. Robson and Andrew W. Tordoff. The maps were produced by Mai Ky Vinh, Ha Quy Quynh, Andrew W. Tordoff and Nguyen Duc Tu. This manuscript was peer reviewed by Edward C. Dickinson.

A final word of thanks to our colleagues Le Trong Trai, Le Van Cham, Tran Quang Ngoc, and Tran Hieu Minh of FIPI, Nguyen Van Sang (Institute of Ecology and Biological Rescources), Alexander L. Monastyrskii (Russian Vietnam Tropical Centre), Benjamin D. Hayes, and Nguyen Van Tan, Do Ba Khoa and Nguyen Van Hai of Gia Lai Forest Protection Department, who were a source of inspiration and good company during fieldwork.

Fieldwork in 1999 comprised a component of the joint BirdLife International and FIPI Project entitled "Expanding the Protected Areas Network in Vietnam for the 21st Century", Contract VNM/B7-6201/IB/96/005, funded by the Commission of European Communities (DG1), and BirdLife International.

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First records, noteworthy observations and new distributional data for birds in Paraguay

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Received 24 December 1998

The Río Paraguay divides Paraguay into two distinct regions. The relatively flat Chaco in the west is characterised by seasonally flooded palm savannas in the south-east, semi-arid thorn scrub forest in the west, and subhumid forests in the north-east. The Oriente in the east combines several distinct ecosystems and its avifauna is correspondingly diverse (Hayes 1995): cerrado in the north, natural grasslands and marshes in the south and humid Interior Atlantic Forest in the east.

From July to December 1997 we carried out ornithological fieldwork in a variety of habitats at three sites in the Chaco and three in the Oriente. Our work focused on two of the seven geographical regions identified by Hayes (1995): Matogrosense in the Chaco, and Central Paraguay in the Oriente. Additional short spells of fieldwork were conducted at sites in the Alto Chaco and Alto Paraná regions. Noteworthy records from additional fieldwork conducted by AMN and RPC are also included, as are a few observations from 1994-95, omitted from previous publications (e.g. Lowen *et al.* 1997a,b; Madroño N. & Esquivel 1997). From these surveys we present noteworthy observations on 30 species.

Site details

In Matogrosense we worked at Estancia 42 (= Campo Limon), 35 km north-west of Puerto Bahía Negra, from 5-12 September 1997. Although the region is characterised by subhumid, medium-height forest (10-20 m), within the estancia few areas remained with a closed canopy above 10-15 m. We surveyed the Río Paraguay north of Concepción from 2-4 September and the Río Negro on 14 September, and conducted additional observations in the vicinity of Puerto Bahía Negra on 5 and 12-16 September 1997. This area of extensive wetlands forms part of the Pantanal with adjacent Brazil and Bolivia. Although palm savannas are present along the river, these are more extensive further south.

In Central Paraguay we worked at Aguará Ñu, Reserva Natural del Bosque Mbaracayú, Dpto. Canindeyú from 24 July to 20 December 1997 and Reserva Natural Privada Tapytá, Dpto. Caazapá from 25 October to 1 November 1997. Aguará Ñu is a *c.*5,500 ha. low plateau of cerrado-type vegetation on the eastern edge of one of the largest remaining blocks of Interior Atlantic Forest in Paraguay. It consists mainly of "Yata'i" palm (*Butia paraguayensis*) savanna and *campo sujo* grassland. A more detailed site description of Aguará Ñu appears in Lowen *et al.* (1996). Tapytá consists of rolling *campo sujo* and *campo limpo* grasslands, interspersed with low, seasonally wet grasslands and marshes, and surrounded by Interior Atlantic Forest. The gallery

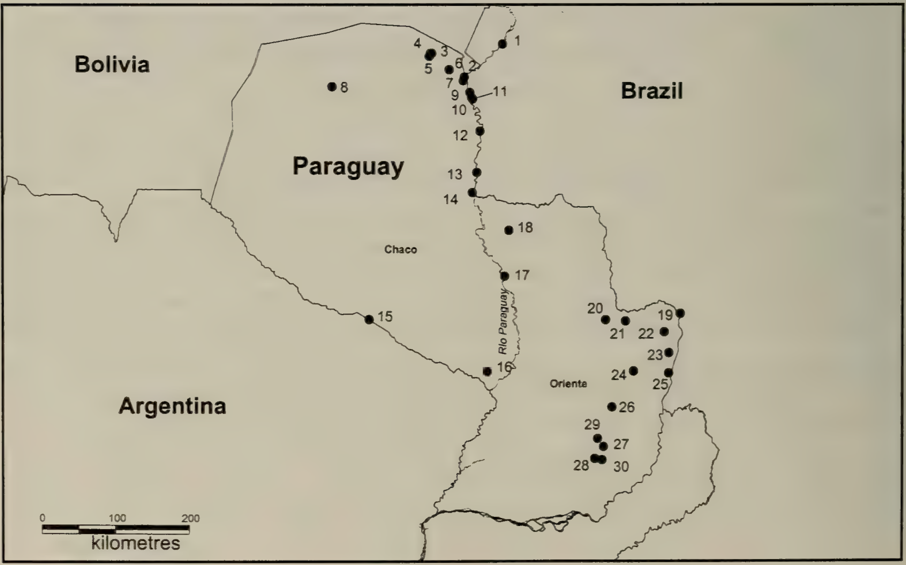

Figure 1. Map showing localities of all sites mentioned in text. Numbers refer to site locations in Appendix 1.

forests along the Arroyo Tayay that runs through Tapytá form the only remaining forested connection between Parque Nacional Caaguazú and Parque Nacional San Rafael (Madroño, N. *et al.* 1997a,b).

Additional short spells of fieldwork were conducted at two sites in the Alto Chaco region, and at one site in the Alto Paraná region. In the Chaco, we conducted fieldwork at Estancia Campo Grande and Estancia Kamba Aka, close to the Bolivian border, *c.*80 km north-west of Puerto Bahía Negra. These sites are at the eastern limit of the Alto Chaco region, in the transition zone with Matogrosense. The vegetation cover is a 'monte alto', a taller xerophytic thorn scrub with more mesophytic elements than is typical of the Alto Chaco. At Estancia Campo Grande the forest cover was broken by extensive areas of grassland and some palm savanna. In the Alto Paraná region fieldwork was conducted at Reserva Natural Privada Ypetí, which protects a 10,000 ha tract of Atlantic Forest and wetlands bordering the Río Monday within Estancia La Golondrina, Dpto. Caazapá. Further details of this site are provided in Lowen *et al.* (1996). The geographical locations of all sites are given in Appendix I and plotted on Fig. 1.

Definitions, abbreviations and conventions

We define the parameters of this paper as follows: (a) first country records; (b) species whose occurrence in Paraguay is treated as 'hypothetical' by Hayes (1995); (c) first reliable records for the Oriente or the Chaco; (d) first observations in geographical regions within Paraguay. Our records are categorised according to Hayes (1995) and subsequent pubications (e.g. Lowen *et al.* 1997a, Ericson & Amarilla 1997) are cited where relevant.

Where possible, records were formally documented (e.g. good quality photograph or tape-recording) and this is indicated in the text. No specimens were taken. We distinguish single and multi-observer records, listing up to three observers in alphabetical order. Authors are indicated by their initials; other observers are named in full. We use '*et al.*' to indicate that more than three observers were involved. All sight aural records are supported by extensive field notes. For mist-netted birds, full biometric data and a blood sample were taken before being photographed and released. Photographs and biometrics are available from the authors. Blood samples have been deposited with the Centre for Tropical Biodiversity, Copenhagen. Unless otherwise stated, tape-recordings have been deposited at the National Sound Archive, Wildlife Section, London. Photographs have been archived at the BirdLife International Secretariat in Cambridge, U. K.

Taxonomy and nomenclature follow Clements (1991, 1994) for non-passerines and Ridgely & Tudor (1989, 1994) for passerines. In each account, we give the species' global status (if listed in Collar *et al.* 1994) and its status in Paraguay (according to Hayes 1995). We follow this with our records and summarise their significance. In certain cases, we include a brief discussion of status or identification features. Appendix 1 lists co-ordinates of all localities mentioned. All sites are at a low altitude (100-300 m). Certain abbreviations are used throughout the text. These are: Dpto. -

Departamento (Department); RNBM - Reserva Natural del Bosque Mbaracayú (Mbaracayú Forest Nature Reserve); PN - Parque Nacional (National Park); RNP - Reserva Natural Privada (Private Nature Reserve); RB - Refugio Biológico (Biological Refuge); RVS - Refugio de Vida Silvestre (Wildlife Refuge).

Species accounts

TATAUPA TINAMOU *Crypturellus tataupa*
Reported as 'common' in all geographical regions of Paraguay except the Alto Chaco ('uncommon') and Matogrosense (not listed) (Hayes (1995). We recorded the first observations of this species for the Matogrosense geographical region. Several were heard at Puerto María Auxiliadora, Dpto. Alto Paraguay on 5-6 July 1993 (AMN). In addition, one was heard on 7 September and two on 11 September 1997 at Estancia 42 (DRC, RPC). All were calling from dense understorey in medium height subhumid forest. As predicted by Hayes (1995: 140), further fieldwork in the Matogrosense region has resulted in new records of ground-dwelling non-passerines (e.g. Ericson & Amarilla 1997).

UNDULATED TINAMOU *Crypturellus undulatus*
Crypturellus undulatus is listed for the Central Paraguay, Campos Cerrados, Bajo Chaco and Matogrosense regions (Hayes 1995). Several *C. undulatus* calling at Estancia Trébol, Dpto. Alto Paraguay on 25 June 1993 (AMN) are the first records for the Alto Chaco region. These birds were heard in dense xerophytic thorn scrub, with some mesophytic elements more typical of habitat closer to the Río Paraguay.

GREEN IBIS *Mesembrinibis cayennensis*
Listed as 'rare' in all geographical regions except the Alto Chaco (not listed) (Hayes 1995). However, there are only three records for the Chaco (1938, 1939 and 1990), and Hayes (1995: 45) discussed in detail his reasons for treating the locality of the 1939 specimen as doubtful. A single seen, and a second heard on 16 September 1997 in a small marsh at the edge of deciduous medium-height thorn scrub-forest at Estancia Campo Grande (RPC) constitute the first record for the Alto Chaco region and the third or fourth for the Chaco. Although probably more common in the Oriente, this species clearly occurs at very low densities throughout much of Paraguay (Hayes 1995).

WHITE-FACED WHISTLING-DUCK *Dendrocygna viduata*
Hayes (1995) listed *Dendrocygna viduata* as occurring in all geographical regions except Alto Paraná. However, there are recent sightings from at least three sites in this region. At RNP Ypetí, Dpto. Caazapá, 59 *D. viduata* were seen on 10 July 1994 (L. Bartrina, R. Villalba). There have been two subsequent records: one seen on 5 December 1995 (RPC) and a minimum of three on 1 October 1997 (RPC). Anon. (1993) listed the species as common in the Itakyry area, Dpto. Alto Paraná, and Pérez & Colmán (1995) documented two records of this species at RB Mbaracayú, Dpto. Canindeyú.

PLUMBEOUS KITE *Ictinia plumbea*

A northern austral migrant that breeds in Paraguay but is absent in the austral winter (Hayes *et al.* 1994) and listed for all geographical regions except Matogrosense (Hayes 1995). Single birds were observed in the Matogrosense region on 4 September 1997 near Km 1,200 on the Río Paraguay, Dpto. Alto Paraguay (RPC, DRC), and on 7 September 1997 at Estancia 42 (RPC). The bird on 7 September was with three Swallow-tailed Kites *Elanoides forficatus* (see below).

SWALLOW-TAILED KITE *Elanoides forficatus*

Hayes (1995) only listed this northern austral migrant for the Oriente. We recorded it on four occasions in the Matogrosense region: four birds at Fuerte Olimpo on 4 September 1997 (RPC, RGP); three to the north of Fuerte Olimpo on 4 September 1997 (IJB, DRC); three on 7 September 1997 at Estancia 42 (RPC); and a further bird at Puerto Bahía Negra on 12 September 1997 (DRC *et al.*), all Dpto. Alto Paraguay. These are the first records for the Chaco and all presumably refer to birds migrating south.

GREY-BELLIED GOSHAWK *Accipter poliogaster*

Near-threatened (Collar *et al.* 1994). There are ten records of *Accipter poliogaster* for Paraguay, six before 1938 and four more recently (F. E. Hayes *in litt.* 1996, Lowen *et al.* 1996, 1997a). The more recent records are all from RNP Itabó, Dpto. Canindeyú in October 1995 and are presumed to refer to the same two birds (Lowen *et al.* 1996, 1997a). Additionally, Anon. (1993) listed the species as rare in two reserves managed by Itaipú Binacional (RB Limoy and RB Itabó, both Dpto. Alto Paraná) in the Alto Paraná region. At RNP Tapytá, an adult male was seen well in flight and perched in Interior Atlantic Forest on 25 October 1997 (DRC). This is the first observation of this species in the Central Paraguay region, and suggests that a small population of this low-density raptor may exist in the forest complex comprising PN San Rafael, PN Caaguazú and PNR Tapytá in south-east Paraguay.

ASH-THROATED CRAKE *Porzana albicollis*

Hayes (1995) listed this species for four regions, all in eastern Paraguay. *P. albicollis* was recorded in small numbers on 6-9 November 1995 at Estancia La Golondrina, Dpto. Presidente Hayes (JMB, B. López Lanús, J. C. Lowen, M. Pearman and MP). These are the first records for both the Bajo Chaco region and the Paraguayan Chaco. Although the species is apparently common in wetlands close to the Río Paraguay, it is presumably absent from the drier parts of the Chaco.

GREEN-CHEEKED PARAKEET *Pyrrhura molinae*

Two questionable or uncertain records exist for Paraguay: a specimen without locality, and a sight record 50 km west of Ciudad del Este, Dpto. Alto Paraná. However, Hayes (1995: 128) discussed in detail his reasons for treating the occurrence of *P. molinae* in Paraguay as 'hypothetical'. Certainly the sight record in Dpto. Alto Paraná is far from the species' known range and seems likely to refer to either escaped cagebirds or confusion with Reddish-bellied Parakeet *P. frontalis*. At Estancia 42, we observed small flocks of up to five birds daily, flying over medium-height subhumid forest and perched in treetops (DRC *et al.*). On 16 September 1997 small flocks of *P. molinae* were recorded twice in thorn scrub-forest *c.*75 km north-west of Puerto Bahía Negra, Dpto. Alto Paraguay (RPC *et al.*). These birds represent the first records from a specified locality in Paraguay which is close to the species' known range (Forshaw 1989, Hayes 1995).

All *P. molinae* seen well showed all-green upperparts apart from a brown forehead and crown, and blue primary coverts and outer web to the primaries. The brown of the crown extended down to the eyes and ear-coverts, though the latter were a paler, more greyish-brown. There was a quite indistinct and restricted area of green on the cheeks. The sides of the neck, throat and breast were light beige with each feather tipped brown, giving a barred appearance. The rest of the underparts were green apart from a few reddish spots on the belly centre. Upper- and undertail were brownish-red, with the base of each feather greenish. This description clearly eliminates the two possible confusion species known to occur in Paraguay (Blaze-winged Parakeet *P. devillei* and *P. frontalis*), and most closely resembles the subspecies *P. molinae sordida*. This subspecies occurs in southern Mato Grosso, Brazil and easternmost Bolivia, and is the most likely to occur in the Matogrosense region of Paraguay (Forshaw 1989, del Hoyo *et al.* 1997).

PEARLY-BREASTED CUCKOO *Coccyzus euleri*

A single *C. euleri* seen on 11 January 1996, and a pair on 28 October 1996 (AMN) in tall humid subtropical forest in the 'Bosque Encantado' (*c.*2 km east of Jejui-mi within the RNBM, Dpto. Canindeyú) are the first documented records of this species for Paraguay. All birds clearly lacked the rufous in the wing that is characteristic of the otherwise very similar (but not yet recorded from RNBM) Yellow-billed Cuckoo *C. americanus*. The pair seen on 28 October 1996 were observed to copulate (one bird approaching the other with a small twig prior to copulation), suggesting local breeding. A more detailed description of the habitat is provided in Madroño, N. & Esquivel (1997) and a tape-recording deposited at Library of Natural Sounds, Cornell Laboratory of Ornithology has yet to receive a recording number. Further sightings of *Coccyzus* cuckoos on 17 August 1995 and 19 October 1996 (AMN) were either *C. euleri* or *americanus*.

LITTLE CUCKOO *Piaya minuta*

Hayes (1995) did not list *Piaya minuta* for Paraguay and, according to Armonía (1995), it does not occur in either of the two Bolivian lifezones immediately to the north of Paraguay (Cerrado/Bosque Chiquitano and Chaco). The nearest known populations are in the Amazonia lifezone in the northern half of Bolivia (Armonía 1995), and Mato Grosso and Goiás in west-central Brazil (Sick 1993). On 14 September 1997, two closely associating *P. minuta* (presumably a pair) were seen in riverside scrub on the eastern bank of the Río Negro, Dpto. Santa Cruz, *c.*0.5 km north of its mouth into the Río Paraguay (RPC *et al.*). Both birds were seen well and photographed (see Clay *et al.* 1998). Although this locality lies within Bolivia, many sections of the Río Negro are not very wide (<50 m), the habitat is similar on both banks, and it seems very likely that *P. minuta* also occurs in Paraguay. Notwithstanding, this record at the extreme south-eastern tip of Bolivia represents a notable in-country range extension.

PAVONINE CUCKOO *Dromococcyx pavoninus*
There is only one previous record of this species for the Paraguayan Chaco (Hayes 1995, Steinbacher 1962). At Estancia 42, at least three birds were calling (and tape-recorded) daily at dawn between 6-12 September 1997 (RPC *et al*). All records referred to the distinctive whistled song '*eu e eu eu*' of *D. pavoninus*, which is higher-pitched and lacks the terminal tremolo of the otherwise similar song of Pheasant Cuckoo *D. phasianellus*. These are the first records for Matogrosense and suggest the species is relatively common at least in the north of the region.

GREAT POTOO *Nyctibius grandis*
On 16 September 1997 we found and photographed a brooding *Nyctibius grandis* in a narrow corridor of deciduous thorn scrub-forest surrounded by natural grasslands at Estancia Campo Grande (MP *et al.*). Although mapped for Paraguay by Cleere & Nurney (1998), this species has never previously been reported in the country (Hayes 1995). However, it is known to occur rarely in adjacent Mato Grosso do Sul, Brazil (Cintra & Yamashita 1990, Parker *et al.* 1993), only 150 km to the north-east. The bird was a typical pale individual of this species: very bulky; a large, full, square ended tail, with a short projection beyond the wing tips; plumage lacked any warm tones, without a dark cap or malar stripe; finely barred underparts; dusky tail bars sharply bordered black on a greyish-white background. A photograph appears in Clay *et al* (1998).

The nest was 7 m high in a tree within the scrub-forest (tree height: 10 m), *c.*5 m off the track. The nest tree was one of the tallest in the area, emerging *c.*2 m above the canopy. The bird was brooding a single large white egg, placed in the depression left by a broken branch immediately adjacent to the main trunk.

BAND-TAILED NIGHTHAWK *Nyctiprogne leucopyga*
Listed by Contreras *et al.* (1990) for Paraguay, and the country is included within its range in general works such as Parker *et al.* (1996). However, Hayes (1995) did not include *N. leucopyga* in the Paraguayan avifauna due to an absence of published evidence. On 4 September 1997, a flock of *c.*50 were seen feeding at dusk over riverside vegetation near Km 1,205 on the Río Paraguay, Dpto. Alto Paraguay, *c.*35 km south of Puerto Bahía Negra by river (RPC *et al.*). The species was later recorded in flocks of up to 40 birds at dusk in Puerto Bahía Negra, 12-15 September (RPC *et al.*). All birds seemed to originate from the Brazilian side of the Río Paraguay. Several were observed returning to the Brazilian side of the river at dawn on 14 and 16 September. On 14 September birds were seen to feed over marshes on the Brazilian side to the north of Puerto Bahía Negra.

All records at dusk involved groups of birds which subsequently dispersed, but all dawn observations were of single birds, sometimes foraging with Nacunda Nighthawk *Podager nacunda*. It seems likely that *N. leucopyga* roosts communally (as described by Cherrie 1916) on the Brazilian side of the Río Paraguay, flying to the Paraguayan side to feed at dusk. Birds then disperse, returning independently to roost sites.

All birds conformed to the following general description: a small dark nighthawk with an inconspicuous white band across the middle of the underside of the tail, visible on the upperside as a small white spot on the outer web of the outer rectrices; tail quite long with prominent notch; wings all dark, long and slender; underparts prominently barred dark brown and pale; rarely visible white malar stripe. Flight was rapid and erratic, with stiff, shallow wing beats; wings held in a 'V' when gliding. Most birds seen were foraging at a height of 5-10 m, but flew lower over open habitats. Occasionally birds were heard to call: a single, low, guttural 'churk', and once a triple-noted 'churk churk weur'.

We recorded *N. leucopyga* in good numbers whenever we were close to the Río Paraguay at dusk or dawn, and it seems likely that it is a common inhabitant of the northern Matogrosense region. We did not record the species away from the Río Paraguay despite fairly extensive nocturnal survey work. This suggests that it is restricted to the extensive marshes bordering the larger rivers on the eastern boundary of the region.

A specimen of *N. leucopyga* collected on 25 September 1909 (BMNH catalogue no.: 1910.7.9.143) at "Porto Esperança, Alto Paraguay" refers to the Brazilian Porto Esperança, Mato Grosso do Sul (Grant 1911), rather than either Puerto Esperanza or Puerto La Esperanza, both Dpto. Alto Paraguay, Paraguay (*contra* Cleere & Nurney 1998). Porto Esperança lies 100 km north-east of Puerto Bahía Negra, and thus *N. leucopyga* is clearly not a recent immigrant to the region. Unless it is only a seasonal visitor here, it has been overlooked during previous work in the area (e.g. Hayes *et al.* 1990). This is perhaps due to its nocturnal habits or birds (apparently) roosting in Brazil.

RUFOUS NIGHTJAR *Caprimulgus rufus*

Caprimulgus rufus is an uncommon breeding resident in the Oriente. Although mapped for the Chaco by Cleere & Nurney (1998), in Paraguay, it has not been recorded further west than 10-20 km east of the Río Paraguay (Hayes 1995, Laubmann 1940). At dawn on 7-8 September 1997, a single *C. rufus* was calling at Estancia 42 (DRC, RPC). These are the first reports of the species for the Paraguayan Chaco. This species occurs in the adjacent regions of Bolivia (Armonía 1995) and its presence in this more humid region of the Chaco was to be expected.

BISCUTATE SWIFT *Streptoprocne biscutata*

This species was listed by Contreras *et al.* (1990) as occurring in Paraguay, but was not included in the Paraguayan avifauna by Hayes (1995) due to a lack of published evidence or specimen records. On 26 November 1997 a single *Streptoprocne biscutata* was seen flying low to the north at Aguará Ñu, RNBM (RPC). The bird was easily differentiated from White-collared Swift *S. zonaris* by the two distinct white patches on the nape and throat (clearly separated on the sides of the neck) and by a slightly rounded tail. It also appeared slightly smaller, and perhaps slimmer winged than *S. zonaris*. From 21-30 November there was a marked movement/congregation of swifts at Aguará Ñu, involving three species besides *S. biscutata* - *S. zonaris*, Great Dusky Swift *Cypseloides senex* and Sooty Swift *C. fumigatus*. There are few records of these swifts from RNBM and nearly all probably relate to poor-weather or post-breeding dispersal movements.

LINEATED WOODPECKER *Dryocopus lineatus*

Hayes (1995) listed only two confirmed records for the Chaco, both in the Bajo Chaco region, and considered *Dryocopus lineatus* 'hypothetical' in Matogrosense. Hayes (1995: 45) discussed in detail his reasons for treating a specimen collected in 1939, 235 km west of Riacho (Río) Negro as doubtful. This locality almost certainly lies in western Dpto. Presidente Hayes, in the Bajo Chaco region, (Hayes 1995) and the reasoning for listing it as 'hypothetical' in Matogrosense is unclear. At Estancia 42, we recorded it on 6-7, 9 and 12 September 1997 with a minimum of three birds drumming (RPC *et al.*). All birds were seen and heard in thorn scrub-forest. A sighting of a single male in deciduous thorn scrub-forest at Estancia Kamba Aka on 16 September 1997 (RPC) is the first record for the Alto Chaco region.

RUFOUS-WINGED ANTSHRIKE *Thamnophilus torquatus*

Occurs locally in cerrado, cerradão and marshy tangles in eastern and central Brazil and eastern Bolivia (Ridgely & Tudor 1994, Sick 1993). Hayes (1995) did not list this species for Paraguay. At Aguará Ñu, RNBM, we recorded *T. torquatus* almost daily in three spells of fieldwork covering the period 24 July-20 December 1997 (JMB *et al.*). A male was mist-netted and photographed on 7 August 1997 (see *Cotinga* 8: 11-12). The species was tape-recorded on numerous occasions, and recordings have been deposited at both the National sound Archive and the Library of Natural Sounds, Cornell. Birds were most commonly observed in dense *campo sujo* or palm cerrado, but were also recorded on the edge of isolated woodland patches.

Although similar to the nominate race of *T. ruficapillus*, *T. torquatus* is markedly smaller with a noticeably shorter tail, and a distinctive male plumage. Males have a black 'skull-cap', not reaching the eye, with a grey face and buffy forehead; white underparts with black barring on throat, breast and belly; olive-brown upperparts with rufous wings; black tail barred white. Females are considerably more difficult to separate, but the smaller size and shorter tail of *T. torquatus* are helpful features. Allowing for individual variation, the songs of *T. ruficapillus* and *T. torquatus* are apparently indistinguishable (M. Isler *in litt.* 1998) and, in Aguará Ñu, *T. torquatus* responded to playback of *T. ruficapillus*.

Given the now confirmed presence of *T. torquatus* at Aguará Ñu, RNBM, the identity of a female *Thamnophilus* sp. at this site on 16 and 18 September 1995, initially considered to be a Rufous-capped Antshrike *Thamnophilus ruficapillus* (Lowen *et al.* 1996, 1997a), is best treated as uncertain pending further research (RPC,

M. and P. Isler *in litt.* 1998, J. Tobias *in litt.* 1997). There are therefore no confirmed records of *T. ruficapillus* from RNBM.

BOLIVIAN SLATY-ANTSHRIKE *Thamnophilus sticturus*

The slaty-antshrike *Thamnophilus* (*punctatus*) species complex has recently been shown to consist of at least six separate species (Isler *et al.* 1997). No member of this species complex has been reported previously for Paraguay, although the mapped range of the Bolivian Slaty-antshrike *Thamnophilus sticturus* (see Fig. 18 in Isler *et al.* 1997) comes close to extreme northern Paraguay. At Estancia 42 we found *T. sticturus* to be common in the mid-storey of medium-height subhumid forest from 5-12 September 1997 (RPC *et al.*). One male was mist-netted on 8 September 1997 and photographed (Clay *et al.* 1998). Several different calls were tape-recorded, including the distinctive *sticturus* call and Rattle 1 of Isler *et al.* (1997) (M. & P. Isler *in litt.* 1998).

The male caught and all males seen were essentially identical to the description of the species provided by Isler *et al.* (1997), including the pattern of white spots on the inner rectrices, the extensive white underparts, the small bill and grey iris (the last a feature not mentioned in Isler *et al.* 1997, but one that seems to be distinctive of *T. sticturus*, M. & P. Isler *in litt.* 1998). Female plumage (field observations only) was again similar to that described by Isler *et al.* (1997), though the lower underparts seemed to be washed sandy rather than extensively whitish.

It is conceivable that this species has been previously overlooked: Hayes (1995) listed the similar Variable Antshrike *T. caerulescens* as 'common' for Matogrosense. In contrast, we did not record *T. caerulescens* at any of our fieldwork sites in the region and there are no specimens from this region. Therefore, it would appear necessary to re-evaluate previous records of *T. caerulescens* for Matogrosense.

SMALL-BILLED ELAENIA *Elaenia parvirostris*

Elaenia parvirostris has been recorded in every geographical region in Paraguay except Matogrosense (Hayes 1995). At Estancia 42 we recorded individuals of this species on 6 and 9 September 1997 (DRC, RPC). Both birds were distinguished from other similar *Elaenia* species, including White-crested Eleania *E. albiceps*, by the presence of three wing-bars, the strong contrast between relatively bright green upperparts and grey throat, and the yellow-orange base to the lower mandible. These represent the first and second records for the Matogrosense region. *E. parvirostris* is an austral migrant (Parker *et al.* 1996) and our records may refer to southbound migrants.

BRAN-COLOURED FLYCATCHER *Myiophobus fasciatus*

Ericson & Amarilla (1997) provided the first documentation of this species from the Paraguayan Chaco: a juvenile collected in PN Defensores del Chaco, Dpto. Alto Paraguay on 25 March 1995. The second record for the Paraguayan Chaco is of two individuals observed at Estancia La Golondrina, Dpto. Presidente Hayes from 6-9 November 1995 (JMB, B. López Lanús, J. C. Lowen, M. Pearman, MP), which constitutes the first for the Bajo Chaco region. The occurrence of this species in the

Chaco close to the Rio Paraguay is not surprising given that it occurs throughout eastern Paraguay (Hayes 1995). However, the juvenile collected so far from the known range of *M. fasciatus* in Paraguay is more surprising.

XENOPSARIS *Xenopsaris albinucha*

Listed as occurring in two regions in Paraguay: Alto Chaco and Central Paraguay (Hayes 1995). Although there are 'many records' from the Chaco, there are only two records from the Oriente: a specimen collected at Cerro Amambay, Dpto. Amambay, in 1938 and a brief sight record of a bird at Parque Nacional Ybycuí, Dpto. Paraguarí (the latter perhaps best treated as hypothetical, F. Hayes verbally 1997). In addition, a single bird was seen at Estancia Ybú, Dpto. Concepción in November 1995 (M. Pearman verbally 1995), and another at Parque Nacional Serrania San Luis, Dpto. Concepción in October 1996 (Robbins *et al.* 1999). These are the first records for the Campos Cerrado region. On 7 October 1997, a single bird was observed in gallery forest beside the Arroyo Guyrakeha at Aguará Ñu, RNBM (IJB, EZE). This latter sighting constitutes either the fourth or fifth record of this species in eastern Paraguay.

HELLMAYR'S PIPIT *Anthus hellmayri*

Listed as 'hypothetical' in Paraguay, with two reports by Podtiaguin (1944) from the Chaco regarded as unreliable: they lack plumage description and date (Hayes 1995). *A. hellmayri* was first documented in Paraguay at RVS Yabebyry, Dpto. Misiones in October 1995 (Lowen *et al.* 1996, 1997a). We found at least one *A. hellmayri* in campo grasslands at RNP Tapytá on 30-31 October 1997 (DRC, RPC), and a single at Estancia Franco-cué on 5 March 1998 (RPC). Both birds were observed well and the display flight was tape-recorded at RNP Tapytá. They were identified by a combination of heavily streaked upperparts with inconspicuous mantle lines, very fine streaking on the breast and flanks, a relatively closed face pattern, long hind claw and brownish-white outertail feathers. These are only the second and third documented sites for this species in Paraguay and the first and second records for Central Paraguay.

CINNAMON TANAGER *Schistochlamys ruficapillus*

Schistochlamys ruficapillus is widely distributed in eastern Brazil (Sick 1993) and there are three sight records from Argentina (M. Pearman verbally 1998). It is uncommon to fairly common in partially open country such as cerrado, caatinga and disturbed, anthropogenic habitats (Ridgely & Tudor 1989, Sick 1993). Hayes (1995) did not list this species for Paraguay. At Aguará Ñu, RNBM, we recorded two on 26 July (DRC, RPC, MP), and one on 8 August 1997 (CPK), both in the same area of cerrado *sensu stricto*.

All birds were quite small, relatively long-tailed tanagers, with cinnamon ear-coverts, forecrown, sides of neck, throat, breast and breast sides; flanks and belly pale greyish, palest on belly centre; undertail-coverts deep cinnamon; small, neat black face mask; dusky brown crown; uniform greyish upperparts, with darker tail; paler panel in wing formed by pale fringing to secondaries; bill bluish-grey at base, with darker cutting edges and tip; call, a 'cheep' resembling that of House Sparrow *Passer domesticus*.

CHESTNUT-CAPPED BLACKBIRD *Agelaius ruficapillus*

Agelaius ruficapillus has been recorded in every region apart from Alto Paraná (Hayes 1995). At RNP Ypetí the species was common in marshy areas, 4-6 February 1994 (AMN), with a further sighting of one male on 6 December 1995 (RPC). In addition, Anon. (1993) listed *A. ruficapillus* as scarce at Itakyry in the vicinity of the Itaipú dam, and Pérez & Colmán (1995) detailed two records for the RB Mbaracayú. *A. ruficapillus* is probably a scarce and local resident of wetlands in the region.

UNICOLORED BLACKBIRD *Agelaius cyanopus*

Hayes (1995) considered it common in all regions apart from Alto Paraná (not listed). On 5 December 1995 a small party of *c.* 10 (males and females) were observed at RNP Ypetí in vegetation at the edge of an artificial lagoon (RPC), the first record of this species for Alto Paraná.

DULL-COLOURED GRASSQUIT *Tiaris obscura*

Widely distributed in western South America from Colombia and locally in northern Venezuela to north-west Argentina (Ridgely & Tudor 1989). Hayes (1995) did not list the species for Paraguay, but Bates (1997) documented one specimen record (collected at Chaco-í, Dpto. Presidente Hayes, 9 October 1945) and a series of sight records in 1995 (at Chaco Lodge and Laguna Salada, both Dpto. Presidente Hayes, 3-4 and 9-10 August 1995). At Estancia 42, we mist-netted one on 8 September 1997 and a photograph appears in Clay *et al.* (1998). Single birds were also seen in medium height subhumid forest on 7 and 9-10 September 1997 (DRC, RPC). These records constitute the first for the Matogrosense region. In addition, there is a specimen of *T. obscura* in the Museo Nacional de Historia Natural del Paraguay (MNHNP 000462), a female collected on 21 July 1983, 7 km from the Mision Nueva Tribu, Cerro León, PN Defensores del Chaco, Dpto. Alto Paraguay. This record is actually the first for the Alto Chaco region, with the 1995 observations the second and third. *T. obscura* has now been recorded in all three regions of the Paraguayan Chaco, supporting the suggestion by Bates (1997) that the species might be widespread in the Chaco, at least during the austral winter.

RUSTY-COLLARED SEEDEATER *Sporophila collaris*

Hayes (1995) listed this species for every region except Alto Paraná. However, there are records from at least two sites in this region. At RNP Ypetí it was first recorded on 4 February 1994 (one male, AMN), with a further sighting of three birds (one male) on 30 September 1997 (RPC). Pérez & Colmán (1995) listed three records of this species at RB Mbaracayú, Dpto. Canindeyú and it seems likely to be a scarce inhabitant of wetlands in the region.

DARK-THROATED SEEDEATER *Sporophila ruficollis*

Near-threatened (Collar *et al.* 1994). Hayes (1995) treated the occurrence of this species in Alto Paraná as 'hypothetical' on the basis of being reported as questionable at Puerto Bertoni, Dpto. Alto Paraná by Bertoni (1914). At RNP Ypetí two male

Sporophila ruficollis and an unidentified female *Sporophila* sp. were seen on 1 October 1997 in the wetlands bordering the Río Monday (RPC). These represent the first documented record for the Alto Paraná region. *S. ruficollis* is presumably a rare migrant through the region.

STRIPE-CAPPED SPARROW *Aimophila strigiceps*

Hayes (1995) listed only two specimens and a report of this species for Paraguay, all in the Alto Chaco region. On 26 September 1997, AMN observed and tape-recorded a group of five to seven *A. strigiceps* at Tte. Estéban Martínez, Dpto. Presidente Hayes. The birds perched in small shrubs and fed on the ground in arid semi-open Chaco thorn scrub. There was no evidence of any breeding activity. This is the third or fourth record for Paraguay, where the species appears to be scarce and local. It is the also the first record for the Bajo Chaco region and the furthest east that it has been found in Paraguay.

Acknowledgements

We thank Bolivár Garcete Barrett, Rocio Botta, Belén Jiménez, Luciano Nicolás Naka, Ignacio Roesler and Ramón Villalba for their vital work and companionship in and out of the field. Luis Amarilla, Lucia Bartrina, Rebecca Denny, Bernabé López Lanús, James Lowen, Mark Pearman, Dave Pullan and Ramón Villalba gave permission to cite previously unpublished field observations. In addition, we thank Morton and Phyllis Isler, John Bates and Mark Robbins for providing information on a number of species, Robert Ridgely for his detailed review of the manuscript, and Tim Morrissey and Mark Balman for producing the map. Fieldwork was conducted with the permission and help of the Fundación Moisés Bertoni para la Conservación de la Naturaleza, and was part-funded by grants from the BP Conservation Programme, Lindeth Charitable Trust, People's Trust for Endangered Species and Gilchrist Educational Trust. All individuals and donors will be credited in our final report to be published as part of the CSB Conservation Publications Series.

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APPENDIX I:

Geographical locations of all sites mentioned in text

	Site	Department	Coordinates
1	Porto Esperança	Mato Grosso do Sul, Brazil	19°38'S, 57°27'W
2	0.5 km N of mouth of Río Negro	Santa Cruz, Bolivia	20°10'S, 58°09'W
3	Estancia Kamba Aka	Alto Paraguay	19°47'S, 58°44'W
4	Estancia Campo Grande	Alto Paraguay	19°47'S, 58°45'W
5	75 km NW of Puerto Bahía Negra	Alto Paraguay	19°50'S, 58°46'W
6	Estancia 42	Alto Paraguay	20°03'S, 58°25'W
7	Puerto Bahía Negra	Alto Paraguay	20°14'S, 58°10'W
8	Mision Nueva Tribu, Cerro León	Alto Paraguay	20°20'S, 60°30'W
9	Puerto Esperanza	Alto Paraguay	20°25'S, 58°03'W
10	km 1,205, Río Paraguay	Alto Paraguay	20°30'S, 58°01'W
11	km 1,200, Río Paraguay	Alto Paraguay	20°32'S, 58°00'W
12	Fuerte Olimpo	Alto Paraguay	21°03'S, 57°52'W
13	Puerto María Auxiliadora	Alto Paraguay	21°43'S, 57°55'W
14	Puerto La Esperanza	Alto Paraguay	22°03'S, 58°00'W
15	Tte. Estéban Martínez	Presidente Hayes	24°08'S, 59°50'W
16	Estancia La Golondrina	Presidente Hayes	24°59'S, 57°43'W
17	Estancia Ybú	Concepción	23°25'S, 57°25'W
18	PN Serranía San Luis	Concepción	22°40'S, 57°21'W
19	RB Mbaracayú	Canindeyú	24°02'S, 54°18'W
20	RNBM - Jejui-mi	Canindeyú	24°08'S, 55°31'W
21	RNBM - Aguara Ñu	Canindeyú	24°09'S, 55°16'W
22	RNP Itabó	Canindeyú	24°20'S, 54°35'W
23	RB Limoy	Alto Paraná	24°40'S, 54°30'W
24	Itakyry area	Alto Paraná	24°58'S, 55°07'W
25	RB Itabó	Alto Paraná	25°00'S, 54°30'W
26	Estancia La Golondrina/RNP Ypetí	Caazapá	25°33'S, 55°30'W
27	RNP Tapytá	Caazapá	26°12'S, 55°39'W
28	Estancia Franco-Cué	Caazapá	26°24'S, 55°48'W
29	PN Caaguazú	Caazapá	26°04'S, 55°45'W
30	PN San Rafael	Itapúa/Caazapá	26°25'S, 55°40'W

Primolius Bonaparte, 1857 has priority over *Propyrrhura* Ribeiro, 1920

by John Penhallurick

Received 3 June 1999

In *Cotinga* 5 (1996: 32-42) Whitney published an important subjective review of the characteristics of the Neotropical parrot genera, and proposed that the large macaw genus *Ara* be broken down in several ways to reflect the diversity it contained. Among other things, he recommended that *A. maracana* (Vieillot, 1816), *A. couloni* P.L.Sclater, 1876, and *A. auricollis* Cassin, 1853 be assigned to the genus *Propyrrhura* Ribeiro, 1920. Such a move had also been advocated earlier by Sick (1990), who had indicated the availability of *Propyrrhura.* Collar (1997: 425-426) adopted the suggestion of Sick and Whitney, and reassigned *maracana, couloni* and *auricollis* to *Propyrrhura*, a move which was followed by Juniper & Parr (1998: 429-431). As a result, the name *Propyrrhura* has rather wide currency.

However, the choice of *Propyrrhura* Ribeiro, 1920 overlooks an earlier generic name that is available for the same three species: *Primolius* Bonaparte, 1857. *Primolius* had already been used as a subgenus by Wolters (1975-82: 56) with the notation "incl. Propyrrhura Ribeiro,1920".[1] Some confusion may have been engendered by two distinct citations for *Primolius* Bonaparte, 1857. One, which appears in Salvadori (1891: 151), is to a paper in *Comptes Rendus hebdomadaires des séances de l'Académie des Sciences, Paris*, 44, p. 596 (Bonaparte,1857a). This is undoubtedly a nomen nudum, and thus unavailable. The second, Bonaparte (1857b), (cited in Neave (1940: 889)), lists three species under *Primolius* : *auricollis* Cassin; *maracana* Vieillot; *makawanna* Gmelin [= *Psittacus manilata* Boddaert, 1783], but does not designate a type. The specification of *A. auricollis* as the type of *Primolius* Bonaparte,1857 in Salvadori (1891: 151), under the synonymy of *Ara*, suffices as a subsequent designation. Thus *Primolius* may be cited as:

Primolius Bonaparte, 1857, *Remarques à propos des Observations de M. Émile Blanchard sur les Caractères ostéologiques chez les Oiseaux de la famille des Psittacides, et Tableau des genres des Perroquets disposés en séries parallèles*, p. 6. Type, by subsequent designation (Salvadori, 1891, *Catalogue of the Birds in the British Museum*, 20, *Psittaci*, p.151), *Ara auricollis*, Cassin 1853.

Thus the three species in question should become *Primolius couloni* (P.L.Sclater,1876), *Primolius maracana* (Vieillot, 1816) and *Primolius auricollis* (Cassin,1853).

Acknowledgements

I thank Nigel Collar for assistance in preparing this paper, and Steven Gregory and Michael Walters for assistance in tracking down some references.

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[1]It is not possible to say whether Wolter's reference is to Bonaparte (1857a) or (1857b).

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Threatened and extinct bird specimens held in the Macleay Museum, University of Sydney, Australia

by Graham R. Fulton

Received 24 August 1999

The Macleay collection began in latter part of the 18th century with Alexander Macleay (1767-1848), who amassed what was considered the 'finest' insect collection in Europe and which eventually travelled with him to Australia in 1826 (Holland 1988). This collection was subsequently expanded by his son William Sharp Macleay (1792-1865) and nephew William John Macleay (1820-1891), who further diversified the collection finally transferring it to the University of Sydney, to the specially constructed Macleay Building, about 1890. George Masters (1837-1912) curated the collection over this period until his death (Stanbury & Holland 1988).

W. J. Macleay's ornithological collection probably began on 8 August 1874 at Wagga Wagga, NSW when Masters and Macleay purchased 29 bird skins. In Macleay's notes this acquisition is also the first direct mention of the collection as the Macleay Museum (Fletcher 1893). The next year Macleay approached Adolphus Boucard in London (who edited the monthly scientific and artistic journal *The*

Humming Bird), for 1,000 species of 'foreign' birds, which included a large series of hummingbirds (Holland & Stanbury 1988). F. Gruber sent specimens from the USA during 1875 and 1876, primarily from the west coast. H. Dorrier collected in southeast Siberia and possibly the Russian far east in 1879. Around Australia and Melanesia many prominent and interesting collectors are represented, the most noteworthy including; Edward Pierson Ramsay, Edgar Leopold Layard and his son Leopold Layard (Fisher & Longmore 1995), Edward Spalding, and the Cockerells (father and son). The Emeidae (Moa) ornithological material is presumed to have been obtained from Julius Von Haast of the Canterbury Museum, exchanged with George Masters, in 1876. Originally they were complete skeletons but over time they have become dispersed throughout the university (Tilbrook 1992). Graeme Phipps re-catalogued and re-housed the collection in 1976 and created an electronic database (Stanbury 1988).

The Macleay Museum houses *c.* 8,000 study skins and mounted specimens, supplemented with several hundred skeletal, egg and nest collections. While the skins are well identified, many of the skeletons, eggs and nests remain unidentified. The collection is of significant historical value with the majority of specimens collected in the late 19th century. All orders, including more than 80% of families and half the world's genera are represented. Unsurprisingly, Australasian birds are richly represented, but in addition there is broad geographical composition with extensive collections of Palaearctic, Nearctic and Neotropical birds. Amongst the last is included a substantive series of hummingbirds. The least well covered biogeographical realm is Africa.

The 'Chevert' expedition, funded and staged by the Macleay Museum, was the first Australian expedition to Papua New Guinea and procured a vast and valuable collection (Fletcher 1893). The 'Chevert' collected at numerous localities off the coast of north-eastern Australia and the southern coast of Papua New Guinea, including the Torres Strait Islands and the Gulf of Papua. They collected at Yule Island, Hall Sound and around the mouth of the Katow river, penetrating *c.* 13 km inland (Fletcher 1929). Large collections of mammals, invertebrates, reptiles, fish, shells and plants were taken along with birds. The ornithological component of this expedition was published in two parts; part one by Masters (1876) included the Australian birds, which were predominately collected in Torres Strait and comprised 136 species, 10 of which were considered new species to science. Many type specimens collected on the voyage are still held in the museum and include Macleay's Honeyeater *Xanthotis macleayana* Ramsay 1875, named in honour of the then president of the Linnean Society of New South Wales, W. J. Macleay. Part two (the birds collected at Papua New Guinea) was published by Ramsay (1878), and consists of *c.* 400 specimens from 68 species; no new species were mentioned.

The quality of locality information varies from precise, (as in the case of the 'Chevert Expedition') to incorrect or too generalised, and almost all of the original labels have been removed and replaced, making it virtually impossible to determine the collector or collection date. This practice was pursued by George Masters to standardise the handwriting of labels, which commenced from as early as 1870

TABLE 1

The Macleay collectors. Compiled predominately from Phipps (1988), Tilbrook (1992) and directly from the Macleay Museum Database. Abbreviations: New South Wales (NSW), South Australia (SA), Western Australia (WA), Northern Territory (NT), Queensland (Qld), Papua New Guinea (PNG) and New Zealand (NZ). * Denotes possibly represented in the ornithological collection.

Collector	*Notes*
Boucard, A.	London based dealer who supplied birds from Central and South America (1874 - 1876).
Boyd, J. A.	Fiji (1876); Herbert River, Qld (1876-9).
Brazier, J.	Mauritius and Madagascar (1874); Chevert Expedition (1875).
Brennan, A.	Location unknown (1884).
Broadbent, K.	Gulf of Carpentaria, Qld (1875); northern Qld (1877-9).
Brown, Rev. G.	Samoa (1875); Bismark archipelago (1877-83).
Chotaro, O.	Japan (1900s).
Cockerell, T. D. A.	New Britain, Duke of Yorke I., New Ireland (1876); Solomon Islands (1876-78); Aru I. (1873-87).
Colishaw.	New Zealand (1876).
Dorrier, H.	Southeast Siberia and the Russian far east (1879).
English, Mr.	Port Moresby, PNG (1889).
Etheridge, R.	Cooks River, NSW (1893).
Goldie, A.	Port Moresby and Yule I., PNG (1870s).
Gould, J.	Hunter River area NSW (1839-40).
Gruber, F.	California USA (1875).
Hector, J.	Tararua Mts. New Zealand (date uncertain).
Henry, J. R.	Northern Territory (1940s).
Jackson, S. W.	Australia (c.1894).
Layard, E. L.	Fiji (1876); New Caledonia, NZ, and Brazil (1878-79); Loyalty Is., and New Caledonia, Lifu (1878-90).
Macleay, W. J.	Sydney district NSW (1870-90); Chevert Expedition (1875).
Masters, G.	Sydney district NSW (1860-1900); Port denison, Qld (1862); Interior NSW (1864); Ipswich and Pine Mountains, Qld and Flinders Ranges, SA (1865); King George Sound, WA (1866); Tasmania and Wide Bay, Qld (1867); WA (1868-9); Lord Howe I. (1869); Maryborough, Qld (1870); Lower Murrumbidgee R. NSW (1874-76); Chevert Expedition (1875).
Masters, T.	Location unknown (1898).
Miklouho-Maclay, N. N.	Astrolabe Bay, PNG (1876).
Morton, A.	Port Moresby and Yule I., PNG. (1877); Solomon Is.* (1881).
Moseley, J.	Narran, NSW (1889).
North, A. J.	Australia (1890).
Palmer, J. S.	Location unknown (1874-75).
Pearce, C.	Fiji (1875).
Pettard, J.	Tasmania (1867-68); Chevert Expedition (1875).
Prentice, A. J.	Maitland, NSW (1892)
Ramsay, E. P.	Australia (1874-1909).
Rossiter, R. E.	Mallicollo (Malekoula), New Hebrides (1889).
Spalding, E.	Rockingham Bay and Endeavour River, Qld (1867); Endeavour River and Townsville, Qld (1874); Chevert Expedition (1875); Port Darwin, NT. (1877); Brisbane, Qld (1889).

Stanbury, P. J.	China (1977).
Thorpe, J. A.	Lord Howe I. (1875); Cape York, Qld* (1875-76); New Britain, New Caledonia and Banks I. (1876-79).
Threlfall, R.	New Zealand (1888).
Von Haast, J.	New Zealand (1876).
Waller. E.	Brisbane, Qld (1874-76).
Waterhouse, S. A.	Northern Territory and South Australia (1874-75).
West.	Wagga Wagga, NSW (1874).

(Stanbury 1988). 'Localities' on many specimens such as 'Bogota, Colombia' actually provide the purchase site or shipping point and not the collection locality (Phipps 1988). The overall lack of precise locality data may be a consequence of W. J. Macleay's intent on collecting as much material as possible, rather than making informed collecting decisions. Table 1, 'The Macleay Collectors', is included to aid future reviews involving the collection.

Numerous type specimens listed by Stanbury (1969) are held at the Australian Museum on indefinite loan and have been revised by Longmore (1991). Additionally, 19 Fijian type specimens have recently been detected in the Macleay Museum by Fisher & Longmore (1995). Further studies may well unearth more type specimens within the collection, including others listed by Stanbury (1969), that were not sent to the Australian Museum, and others suggested by Longmore (1991).

Most significantly, approximately 8% of the specimens in the Macleay collection are from species listed as threatened or extinct by the World Conservation Monitoring Centre (1997), or species and subspecies considered threatened or extinct by Garnett (1993)(Table 2). Furthermore the entire collection has been stored in a dust and light free environment for more than 100 years and, with exceptions, has maintained good colour and condition.

The collections contains some extremely rare or unique specimens, such as a complete Paradise Parrot *Psephotus pulcherrimus* skeleton and skins of both sexes, Dodo *Raphus cucullatus* and Moa skeletal parts, one of only 22 Night Parrots *Pezoporus occidentalis* in world museums (Forshaw *et al.* 1976), and one of about six Lafresnaye's Rails *Gallirallus lafresnayanus* (Phipps 1988). From New Zealand, there are nine Huias *Heteralocha acutirostris* and 20 Kakapo *Strigops habroptilus* skins, the latter representing 10% of all specimens in the world (Phipps 1988). In short, the collection contains a plethora of endangered and extinct species acquired by expedition, exchange or purchase by 'the Macleay collectors', predominately between 1874 and 1888 (Phipps 1988, Tilbrook 1992), not long before a significant number these species were to become threatened or extinct.

Acknowledgments

I was able to undertake the compilation of this list through the award of the Macleay Miklouho-Maclay Centenary Research Fellowship of the University of Sydney. I would like to thank the Trustees of the Fellowship and the staff of the Macleay Museum, for the opportunity and for their support throughout. In addition, thanks to Walter Boles, Tessa Ivison, Jullian Holland and Vanessa Mack for advice, logistical and friendly support, but moreover to Wayne Longmore for allowing access to his encyclopaedic knowledge.

TABLE 2

Threatened and extinct taxa held in the Macleay Museum. The order of information generally follows: species identification, numbers of specimens with their sex and age, collection location and date where known, and any other relevant information. Phylogenetic arrangement, scientific and common names follow Sibley & Monroe (1990). Emeidae (Moas) follow Turbott (1990), while status follows the World Conservation Monitoring Centre (1997) or, for Australian species and subspecies, nomenclature and status follow Garnett (1993). Subspecies authorities are taken from Peters (1934-1987).

Abbreviations:
† – extinct; coll: – collected by; S.A. – South Australia; W.A. – Western Australia; N.T. – Northern Territory; Qld. – Queensland; N.S.W. – New South Wales; Vic. – Victoria; Tas. – Tasmania; n.l. – no label (NB on mounted specimens the label forms part of the mount); imm. – immature; juv. – juvenile; ex. – unsexed; [GH] – George Hangay Collection; C.M. of N.Z. – Colonial Museum of New Zealand primary label; *Not found* – Specimens that were not found in the collection despite their presence on the bird database.

Non-Passeriformes

Emeidae

Little Bush Moa *Anomalopteryx didiformis* (Owen 1844): †
Heavy-footed Moa *Pachyornis elephantopus* (Owen 1856): †
Crested Moa *Pachyornisaustralis* Oliver 1949: †
Eastern Moa *Emeus crassus* (Owen 1846): †
Stout-legged Moa *Euryapteryx geranoides* (Owen 1848): †
All the above are ex., juv., and adult – New Zealand, skeletal parts.

Casuariidae

Southern Cassowary *Casuarius casuarius* (Linnaeus, 1758): ex., juv., – Papua New Guinea, ex-mount.

Apterygidae

Brown Kiwi *Apteryx australis mantelli* Bartlett 1850: ♀ – New Zealand. ex., imm., – New Zealand.

Little Spotted Kiwi *Apteryx owenii* Gould, 1847: ♂, ♀ and 2 ex., – New Zealand. ex., young – New Zealand. ex., – New Zealand, ex-mount. 2 ex., – n.l., mounted skeletons.

Megapodiidae

Mallee Fowl *Leipoa ocellata* Gould, 1840: ex., young – S.A., ex-mount. ex., – King George Sound, WA. ex., young – S.A., (taken from egg before hatching).

Phasianidae

Western Tragopan *Tragopan melanocephalus* (J. E. Gray, 1829): 2 ♂ and ♀ – Himalayas, India.
Edwards's Pheasant *Lophura e. edwardsi* (Oustalet, 1896): ♀ – Aviary, prepared by H. J. de S. Disney and W. Boles at the Australian Museum, approximately 1979 (pers comm. W. Boles).
Crestless Fireback Pheasant *Lophura erythrophthalma* (Raffles, 1822): ex., – Malacca, Malaysia.
Cheer Pheasant *Catreus wallichi* (Hardwicke, 1827): ex., – Himalayas.

Cnemiornithidae

South Island Goose *Cnemiornis calcitrans* (Owen, 1865): † ex., – skeletal material; part skull; femur, tibiotarsus, and tarsometatarsus.

Anatidae

Freckled Duck Stictonetta naevosa (Gould, 1841): ex., – Narran (near Angledool), NSW. ♂ Victoria, mounted. ♀ – Victoria. ex., – Victoria mounted. ex., – Victoria.

Blue Duck *Hymenolaimus malacorhynchus* (Gmelin, 1789): ex., – Cape Campbell, New Zealand, 31/5/76. 2 ex., – Nelson, New Zealand. 7 ex., – New Zealand.

Brown Teal *Anas aucklandica chlorotis* (G. R. Gray, 1845): ♂ – Dunedin, New Zealand, April 1876. ♂ – New Zealand. E imm., – Southland, New Zealand, 25/11/1875. ♀ – New Zealand.

Turnicidae

Black-breasted Buttonquail *Turnix melanogaster* (Gould 1837): ♀ – Moreton Bay, Queensland, mounted. ex., – Moreton Bay, Queensland. 2 ♂ and ♀ – Australia, aviary. ex., nestling – Australia, aviary.

Chestnut-backed Buttonquail *Turnix castanota* (Gould, I 839): ex., – Port Darwin, N.T. coll: E. Spalding, Jr. May-Sept. 1877.

Centropodidae

Ceylon Coucal *Cetroppus chlororhynchus* Blyth, 1849: ex., – India.

Loridae

Purple-naped Lory *Lorius domicella* (Linnaeus, 1758): ex., – New Britain, Moluccas (ex Australian Museum, donated 1985, (*Lorius hypoinochrous*) reg. 011472 12 Dec. 1899, pre., R. S. Hill), ex-mount with wings spread.

Red-throated Lorikeet *Charmosyna amabilis* (Ramsay, 1875): 2 ♂ and 2 ♀ – Ovalau, Fiji.

Cacatuidae

White-tailed Black Cockatoo *Calyptorhynchus baudinii* Lear, 1832: 4 ex., – King George Sound, W.A., 1 ex-mount. 4 ex., – W.A. ex – Unknown location, ex-mount.

Glossy Black Cockatoo *Calyptorhynchus l. lathami* (Temminck, 1807): ♂ – Unknown location, label = King George Sound, W.A., an erroneous locality. ♂ – Murrumbidgee River, NSW. ♀ – Lower Murrumbidgee River, NSW., ex-mount. ex., – NSW.

Western Long-billed Corella *Cacatua p. pastinator* (Gould, 1841): 5 ex., – King George Sound, W.A., 2 ex-mounts. 2 ex., W.A., ex-mount.

Psittacidae

Kaka *Nestor meridionalis* (Gmelin, 1788): ♂ – New Zealand. ♀ – New Zealand. ex., – New Zealand.

Double-eyed Fig-Parrot *Cyclopsitta diophthalma coxeni* (Gould, 1867): ♂ – Moreton Bay; Queensland. ♀ – Richmond River, NSW. 2 ex., – Moreton Bay, Queensland, mounted.

Pesquet's Parrot *Psittrichas fulgidus* (Lesson, 1830): ex., – Astrolabe Mts, Papua New Guinea. ex., – Southeast coast Papua New Guinea, ex-mount; (ex Australian Museum reg. A9964 purchased from Baron N. de Maclay, March 1881. Exchanged with Hobart Museum 1885). ex., – Papua New Guinea. ex-mount, (ex Australian Museum reg. 2958).

Superb Parrot *Polytelis swainsonii* (Desmarest, 1826): 2 ♂ and 2 ♀ Murrumbidgee River, NSW. ♂ – Aviary, 5/2/1988.

Regent Parrot *Polytelis a. anthopeplus* (Lear, 1831): ♂ – S.A., ex-mount.

Golden-shouldered Parrot *Psephotus chrysopterygius* Gould, 1838: ♂ – Australia, aviary, 4/11/1982.

Paradise Parrot *Psephotus pulcherrimus* (Gould, 1858): † 2 ♂ and ♀ – Qld. ♀ – NSW. ex., – Australia, mounted skeleton.

Horned Parakeet *Eunymphicus cornutus* (Gmelin, 1788): ♂ – Noindu, New Caledonia, coll: E. L. Layard, 1/11/1880. ♀ – coll: E. L. Layard, 17/11/1880.

Orange-bellied Parrot *Neophema chrysogaster* (Latham, 1790): ♂ – Long Bay, NSW., coll: G. Masters.

Scarlet-chested Parrot *Neophema splendida* (Gould, 1841): ♂ and ♀ – S.A. ♂ – S.A, mounted. ♂ – S.A., ex-mount. ♂ – Aviary [GH], 6/7/1986. ♂ – Aviary [GH], *not found*. ♀ – Aviary [GH], June 1987, *not found*.

Swift Parrot *Lathamus discolor* (Shaw, Smith & Hunter, 1790): 2 ♂ – NSW., 1 mounted. ♀ – Tas., mounted. ex., – NSW. 2 ex., – Tas. ex., – S.A., ex-mount.

Night Parrot *Pezoporus occidentalis* Gould, 1861: ex., – exchange from S.A. Museum 30/6/1876, probably from the Gawler ranges Lake Eyre region of S.A., coll: F. W. Andrews 30/6/1876 (see Forshaw et al., 1976).

Kakapo *Strigops habroptilus* G. R. Gray, 1845: († in the wild). 2 ♂ and 2 ♀ – New Zealand. 14 ex., – New Zealand, (13 have C.M. of N.Z., primary labels). ex., – New Zealand, mounted. ♂ – New Zealand, mouned skeleton.

Hyacinthine Macaw *Anodorhynchus hyacinthinus* (Latham, 1790): ex., – Brazil, ex-mount.

Military Macaw *Ara militarius* (Linnaeus, 1766): ex., – Columbia, (primary label = New Granada), ex-mount.

Golden-capped Parakeet *Aratinga auricapilla* (Kuhl, 1820): ex., – S. America.

Golden-tailed Parrotlet *Touit surda* (Kuhl, 1820): 2 ex., – Brazil.

Strigidae

Powerful Owl *Ninox strenua* (Gould, 1838): ex., – Moreton Bay, Queensland.

Raphidae

Dodo *Raphus cucullatus* Linnaeus, 1758: † ex: – Mauritius, skeletal remains, tarsometatarsus, tibiotarsus, and femur.

Columbidae

Partridge Pigeon *Geophaps* s. smithi (Jardine & Selby, I 830): ♂, ♀ and 4 ex., – Darwin, N.T., coll: E. Spalding., Jr. – May-Sept. 1877.

Cloven-feathered Dove *Drepanoptila holosericea* (Temminck, 1810): ♂ – Point Mar, New Caledonia, coll: E. L. Layard, 28/3/1870. ? – Point Mar, New Caledonia, coll: E. L. Layard 25/3/1879.

Giant Pigeon *Ducula goliath* (G.W Gray, 1859): ♀ – New Caledonia. coll: E. L. Layard, 23/8/1879.

Victoria Crowned Pigeon *Goura victoria* (Fraser, 1844): 2 ex., – Papua New Guinea. coll: G. W. M. Pearce 1911-1914, donated by J. Pearce 30/3/1979, (mandible, head and crest only).

Southern Crowned Pigeon *Goura scheepmakeri* Finsch, 1876: ♂ – Hall Sound, Papua New Guinea, 20/8/1875.

Otididae

Lesser Florican *Eupodotis indica* (J. F. Miller, 1782): ex., – India.

Rhynochetidae

Kagu *Rhynochetos jubatus* J. Verreaux and Des Murs, 1860: ♀ – Bai du Sud, New Caledonia, coll: E. L. Layard 4/10/1879. ex., – New Caledonia coll: E. L. Layard, *not found*.

Rallidae

Fijian Rail *Nesoclopeus poecilopters* (Hartlaub, 1866): † 2 ex., – Viti Levu, Fiji. Note a single bird was reported in 1973 (see Holyoak 1979).

New Caledonian Rail *Gallirallus lafresnayanus* (J. Verreaux and Des Murs, 1860): ♀ – Bai du Sud, New Caledonia, coll: E. L. Layard 7/6/1890.

Lord Howe Rail *Gallirallus sylvestris* (Sclater, 1869): 2 ♂ – Lord Howe I., NSW.

Lewin's rail *Rallus pectoralis clelandi* Mathews, 1911: † 2 ex., – King George Sound, W.A.

Corncrake *Crex crex* (Linnaeus, 1758): ex., – North America.

Samoan Wood-Rail *Gallinula pacificus* Hartaub and Finsch, 1871: ex., – Samoa, ex-mount.

Pedionomidae

Plains-wanderer *Pedionomus torquatus* Gould, 1841: ex., – S.A., mounted. ex., S.A. ex-mount.

Scolopacidae

Chatham Snipe *Coenocorypha pusilla* (Bulla, 1869): ex., – Chatham Is., New Zealand.

Spotted Greenshank *Tringa guttifera* (Nordrnann, 1835): ex., – Unknown locality.

Recurvirostridae

Black Stilt *Himantopus novaezelandiae* Gould, 1841: 2 ♂, ♀ and 2 ex., – New Zealand.

Charadriidae

Mountain Plover *Charadrius montanus* J. K. Townsend, 1837: ♂ and ♀ – California, USA.

Hooded Plover *Charadrius rubricollis* Gmelin, 1789: ex., young – King George Sound, W.A. ex., – Victoria.

Laridae

Black-fronted Tern *Chlidonias albostriatus* G. R. Gray, 1845: ♂ imm., – New Zealand. ♀ imm., – New Zealand, imm.

Little Tern *Sterna albifrons sinensis* (Gmelin, 1789): ♂ – Sue I., Qld., ex-mount, 27/6/1875. ♀ – NSW. ex., – Moreton Bay, Qld.

Accipitridae

Square-tailed Kite *Lophoictinia isura* (Gould, 1838): ♂ – King George Sound, W.A. ♀ – Murrumbidgee River, NSW. ex., – Australia.

Red Goshawk *Erythrotriorchis radiatus* (Latham, 1801): 2 ♀ – Qld., (see Debus et al., 1993).

New Guinea Harpy-Eagle *Harpyopsis novaeguineae* Salvadori, 1875: 2 ♂ – Port Moresby, Papua New Guinea.

Falconidae

Grey Falcon *Falco hypoleucos* Gould, 1841: ♂ – King George Sound, W.A.

Podicipedidae

New Zealand Dabchick *Poliocephalus rufopectus* G. R. Gray, 1843: ♀ – Otago, New Zealand. ♀ – New Zealand, July 1875. 2 ex., – New Zealand.

Phalacrocoracidae

King Shag *Phalacrocorax carunculatus* (Gmelin, 1789): ♂ – New Zealand, 2/2/1875.

Ardeidae

Australian Bittern *Botaurus poiciloptilus* (Wagler, 1827): ♂ – New Zealand, 4/8/1876. ♀ – NSW. ex., – NSW., ex-mount. ex., – NSW., *not found*.

Spheniscidae

Fiordland Crested Penguin *Eudyptes pachyrhynchus* G. R. Gray, 1845: ex., – Tawaki, New Zealand, C.M. of N.Z., primary label. ex – New Zealand. ex., – Unknown, ex-mount.

Procellariidae

Hutton's Shearwater *Puffinus huttoni* Mathews, 1912: ex., – Hakoakoa, New Zealand. C.M. of N.Z., primary label.

Diomedeidae

Wandering Albatross *Diomedia exulans* Linnaeus, 1758: ex., – Sydney Heads, NSW. ex., – Australian seas.

Passeriformes

Acanthisittidae

Bush Wren *Xenicus longipes* (Gmelin, 1879): † ex – New Zealand.

Cotingidae

Bare-necked Umbrellabird *Cepalopterus glabricollis* Gould, 1851: ♂ – Panama.

Three-wattled Bellbird *Procnias tricarunculata* (J. and E. Verreaux, 1853): ♂ imm., – Central America.

Atrichornithidae

Rufous Scrub-bird *Atrichornis rufescens* (Ramsay, 1867): 2 ♂ – Richmond River, NSW., mounted. ♂ – Richmond River, NSW.

Noisy Scrub-bird *Atrichornis clamosus* (Gould, 1844): 2 ♂ – King George Sound, W.A.

Maluridae

Lilac-crowned Fairy-wren *Malurus c. coronatus* Gould, 1857: ♂ – Kings Sound, W.A., coll: G. Masters, 11/10/1887. ♂ King's Sound, W.A. coll: G. Masters, 2/10/87. ♂ imm., – King's Sound, W.A., coll: G. Masters. ♂ – northern W.A. ♀ – King's Sound, W.A. coll: G. Masters, 13/10/1887. ♀ – Derby, W.A., coll: G. Masters.

Thick-billed Grasswren *Amytornis textillis myall* (Mathews, 1916): ex., – S.A.

Striated Grasswren *Amytornis s. striatus* (Gould, 1840): ex., – S.A.

Meliphagidae

Rotuma Honeyeater *Myzomela chermesina* G. R. Gray 1846: 3 ex., – Rotuma I., Fiji.

Mao *Gymnomyza samoensis* (Hombron and Jacquinot, 1841): ex., – Samoa.

Regent Honeyeater *Xanthomyza phrygia* (Shaw, 1794): 3 ♂, 2 ♀ and ex., – NSW., 2 mounted ♂ and ♀.

Pardalotidae

Forty-spotted Pardalote *Pardalotus quadragintus* Gould, 1838: 4 ex., – Tas., 2 mounted.

Acanthizidae

Western Bristlebird *Dasyornis longirostris* Gould, 1841: 5 ex., – King George Sound, W.A., 3 mounted.

Eastern Bristlebird *Dasyornis brachypterus* (Latham, 1801): 2 ♂ – Long Bay, NSW., 1 mounted. 2 ♀ – Long Bay, NSW., 1 mounted.

Lord Howe Island Warbler *Gerygone insularis* Ramsay, 1878: † ex., – Lord Howe I., NSW.

Cinclosomatidae

Western Whipbird *Psophodes n. nigrogularis* Gould, 1844: ♂ – King George Sound, W.A., mounted. 2 ex., – King George Sound, W.A.

Neosittidae

Varied Sittella *Daphoenositta chrysoptera albata* (Ramsay, 1877): † ♂ – Port Denison, Queensland. coll: E. Spalding, Jr. May-Sept., 1877. ex., – Port Denison, Queensland, mounted.

Pachycephalidae

Whitehead *Mohoua ochrocephala* (Gmelin, 1789): ♂ – New Zealand. ♀ – New Zealand.

Piopio *Turnagra capensis* (Sparrman, 1787): † ♂ – New Zealand. ♀ – New Zealand.

Paradisaeidae

Goldie's Bird of Paradise *Paradisea decora* Salvin and Godman 1883: ♂ – Papua New Guinea. 2 ♀ – Papua New Guinea.

Cracticidae

Pied Currawong *Strepera graculina crissalis* (Sharp, 1877): 2 ♀ – Lord Howe I., NSW

Monarchidae

Samoan Flycatcher *Myiagra albiventris* (Peale, 1849): ex., – Samoa, ex-mount.

Silktail *Lamprolia victoriae* Finsch, 1873: ♂ – Ngila, Taveuni I., Fiji, E. L. Layard, 29/7/1875. ♀ – Ngila, Taveuni I., Fiji, E. L. Layard, 3/8/1875.

Callaeatidae

Kokako *Callaeas cinerea* (Gmelin, 1788): ♂ – South I., New Zealand. ♀ – South I., New Zealand, *not found*. ex., – New Zealand, (*C. c. cinerea* Sth. I. Kakako). ♀ – North I., New Zealand (C.M. of N.Z. primary label). 4 ex., – North I., New Zealand. ♀ – (North I.)? New Zealand, (C.M. of N.Z. primary label). this specimen is *C. c. cinerea* Sth. I. Kakako.

Huia *Heteralocha acutirostris* (Gould, 1837): † ♂ and ♀ – Tararua Mts, New Zealand. ♂ and ♀ – New Zealand 26/8/1878 (C.M. of N.Z. primary label). ♀ – New Zealand, (C.M. of N.Z. primary label). ♀ – New Zealand, 7/10/1876 (C.M. of N.Z. primary label). ♀ – New Zealand, 26/8/1876. ♀ – New Zealand, 20/8/1875 (C.M. of N.Z. primary label). ♀ – NewZealand, 6/9/1875. All coll: J. Hector.

Turdidae

Lifu Island Thrush *Turdus poliocephalus pritzbueri* Layard, 1878: † Lifu I., Loyalty Is, New Caledonia but persists on Tanna, Vanuatu (Bregulla, 1992; Hannecart and Leocart 1983). ♂ – Kepenehe Lifu I., Loyalty Is, New. Caledonia, coll: E. L. Layard, 19/8/1879. ♀ – Kepenehe Lifu I., Loyalty Is, New Caledonia. coll: E. L. Layard, 28/8/1879.

Island Thrush *T. p. xanthopus* J. R. Forster, 1844: ♂ and ♀ – Yahoue, New Caledonia, coll: E. L. Layard, 26/7/1879.

Vinous-tinted Thrush *T. p. vinitinctus* (Gould, 1855): † ♂ and ♀ – Lord Howe I., NSW.

Sturnidae

Lord Howe Island Starling *Aplonis fusca hullianus* Mathews, 1912: † ♂ and ♀ – Lord Howe I., NSW.

Pycnonotidae

Yellow-crowned Bulbul *Pycnonotus zeylanicus* Gmelin, 1789): ♂ – Malay Archipelago.

Zosteropidae

Robust Silvereye *Zosterops strenuus* Gould, 1855: † 2 ♂ – Lord Howe I., NSW.

Estrildidae

Star Finch *Neochmia ruficauda clarescens* (Hartert, 1899): ♂ – Gulf of Carpentaria, Qld. coll: K. Broadbent. ♂ – northern W.A. ♀ – Qld. 2 ex., – Qld., mounted.

Black-throated Finch *Poephila c. cincta* (Gould, 1837): ♂ – Moreton Bav, Qld., mounted. – 2 ex., – Cleveland Bay, Qld. ex., – Qld., mounted.

Gouldian Finch *Chloebia gouldiae* (Gould, 1844): ♂ – Port Darwin, coll: E. Spalding, Jr., May-Sept. 1877. ex., – Derby, W.A., coll: G. Masters, *not found*. 2 ex., – northern W.A.

Java Sparrow *Padda oryzivora* (Linnaeus, 1758): 2 ex., – Java, Indonesia.

Carduelidae

Yellow-faced Siskin *Carduelis yarrellii* (Audubon, 1839): ♂ – Brazil.

Red Siskin *Carduelis cucullata* Swainson, 1820: ♂ – Trinidad.

Icteridae

Red-breasted Meadowlark *Sturnella militaris* (Linnaeus, 1771): ♂ – Trinidad. ♀ – Bogota, Columbia. 2 ex., – Sth. America. ex., – Sth. America ex-mount.

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Further range extensions and noteworthy records for Venezuelan birds

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Received 3 December 1999

The avifauna of Venezuela is relatively well known thanks to the efforts of William H. Phelps and William H. Phelps Jr. and their collaborators (e.g. Phelps & Phelps 1958, 1963). Their work created the largest ornithological collection in Latin America and culminated in the production of the first modern field guide to a South American avifauna (Meyer de Schauensee & Phelps 1978). This field guide provoked further study of the Venezuelan avifauna and encouraged amateur ornithologists to visit the country. Since the publication of the guide, a number of articles have provided new information on range extensions within Venezuela (e.g. Lentino 1978, Lentino *et al.* 1984, Boesman 1998, Kirwan & Sharpe 1999, Hilty 1999), whilst others have documented the avifauna of particular sites (e.g. Stiles 1984, Lentino & Goodwin 1993, Ascanio & Rodríguez 1995, Zimmer & Hilty 1997). A revised edition of the field guide (Phelps & Meyer de Schauensee 1994) incorporated some of this information.

The information reported here was collected between 1985 and 1999 over the whole of Venezuela, except for Amazonas State, and includes geographical range extensions, new altitudinal data and new information on habitat associations. Detailed information is given for 31 species, with 18 additional species covered more briefly at the end of the article. Most of the records simply reflect a more complete knowledge of the geographic range of the species concerned. In part this is due to increased visitation to areas which were not well known previously, such as the northern Andes of Trujillo and Lara. However, some new information apparently reflects the expansion of species into recently created habitats, due to vegetation change, for example the spread of the Magpie Tanager *Cissops leveriana* due to deforestation. Other records refer to trans-Andean movements, particularly across the Mérida Andes via lower passes. New records are provided for five boreal migrants whilst further information is given on two species of conservation concern.

Initials in parentheses refer to the authors and accompanying observers listed in the Acknowledgements.

WHISTLING HERON *Syrigma sibilatrix*

In Venezuela, this species has not been recorded west of Barinas and never above 500 m (Meyer de Schauensee & Phelps 1978). An adult was seen at Laguna Miraflores (2,300 m) on the Mérida - La Azulita road, Mérida on 21 and 22 January 1998 (DAS, CJS). The altitude and location along a pass linking the Río Chama valley with Lake Maracaibo suggest that this individual was in transit between the llanos and the Lake Maracaibo Basin, an area for which there are no records of this species. A search of the watershed may provide further interesting records.

CAPPED HERON *Pilherodius pileatus*

This species has not been recorded above 500 m (Meyer de Schauensee & Phelps 1978). An adult was seen at Laguna Miraflores (2,300 m) on the Mérida - La Azulita road, Mérida on 21 and 22 January 1998 (DAS, CJS). As with the previous species, the altitude and location may indicate movement between the llanos and the Lake Maracaibo Basin.

FASCIATED TIGER-HERON *Tigrisoma fasciatum*

This species has been recorded in the Venezuelan Andes from north-west Zulia and there are single sight records from the foothills of Barinas at Barinitas (SLH *in litt.*) and Táchira (Boesman 1998). We present a further, much higher record of an adult seen in the Providencia area on the Río Quinimarí (1,200 m), El Tamá National Park, Táchira on 28 May 1996 (GAR).

ZIGZAG HERON *Zebrilus undulatus*

This Amazonian heron has been recorded only from south of the Orinoco and from the delta region of Monagas and Delta Amacuro (Meyer de Schauensee & Phelps 1978) with a recently discovered population near El Baúl, Cojedes (K.J. Zimmer and D. Wolf in Zimmer & Hilty 1997). A small population has been observed at Hato El Cedral, Apure since August 1996. The first record was a bird heard and tape-recorded at the Río Caicara in August 1996 (GAR). This was followed by a sighting of two juveniles in dense, seasonally-flooded gallery forest on the north bank of the Río Matiyure on 2 January 1998 (DAE, William E. Davis, John Kritcher) some 10-15 km from the first sighting. During 1998, one adult and one immature were regularly seen at the latter site and another adult close by in similar habitat on the south bank (DAE, GAR, CJS). On 21 February 1999, three adults were seen along the Río Matiyure (MB, RS, CJS and several other observers) and it appears that at least five individuals (three adults and two immatures) are now regularly observed along this river. The ranch now appears to hold a sizeable population, based on vocalisations (DAE). It is unclear whether this shy heron had previously remained undetected at the Hato or whether the current population represents a recent colonisation. Local inhabitants (Ramón Arbujas, pers. comm. to CJS, 1998) state that the species formerly occurred on the ranch some sixty years ago, but that it has been absent until recently. This species is considered Near Threatened internationally (IUCN 1996), but for Venezuela we concur with the decision to regard it as Insufficiently Known (Rodríguez & Rojas-Suarez 1999), since large extensions of known habitat are already protected in Venezuela.

BOAT-BILLED HERON *Cochlearius cochlearius*

A skull was found at Laguna de Mucubají (3,500 m), Mérida on 15 August 1997 (CJS) and was retained by personnel of the National Institute of Parks (INPARQUES). In Venezuela, all previous records are below 300 m (Meyer de Schauensee & Phelps 1978) except for a specimen obtained at San Jacinto (1,450 m), Mérida (Phelps &

Phelps 1958), although Fjeldså & Krabbe (1990) note that it has occurred in the páramo zone. In Colombia it has been known to wander to 2,600 m (Hilty & Brown 1986).

SLENDER-BILLED KITE *Helicolestes hamatus*

A single adult was seen perched atop a dead branch of a tree in swamp forest near Puerto Concha, Ciénagas del Catatumbo National Park, Zulia on 6 September 1999 (DAE, JdH) and nine adults and a juvenile were seen at the same place on 1 February 2000 (DAE, AG). This swamp-forest species was distinguished from the Snail Kite *Rosthramus sociabilis*, which is common and widespread in open marshes, by the yellow eye, bulkier body and shorter tail. This park is located in the southern section of Lake Maracaibo and the main habitat is swamp forest and mangroves. These reports represent a 200 km north-westerly range extension and the first record for the Maracaibo Basin (Meyer de Schauensee & Phelps 1978).

PEREGRINE FALCON *Falco peregrinus*

This species has previously been documented by a specimen from Margarita Island and sight records from other islands as well as Aragua and Miranda (Meyer de Schauensee & Phelps 1978). It appears to be a frequent winter resident throughout northern Venezuela, especially on the coast and in the Apure llanos where it feeds on shorebirds and ducks. We have records from Apure, Aragua, Barinas, Bolívar, Cojedes, Distrito Federal, Mérida and Miranda. The first birds pass through the Coastal Cordillera (e.g. El Avila, Distrito Federal; Rancho Grande Biological Station, Aragua) and Andes (e.g. Laguna de Mucubají, Mérida) in October and the last birds linger in the llanos into April. Earliest records are on 30 September from Rancho Grande Biological Station (CJS) and latest on 18 April from the Orinoco at Caicara, Bolívar (Peter Boesman, *in litt.*).

GREY-BREASTED CRAKE *Laterallus exilis*

Recorded from Mérida, Falcón, Portuguesa, Miranda and Monagas (Lentino *et al.* 1984, Meyer de Schauensee & Phelps 1978), but the distribution of this species is incompletely known. A new record is of an individual at Hato El Cedral in March 1994 (DAE). The bird was seen well from a distance of 1.5 m, walking along the bank of a creek choked with Water Hyacinth *Eichhornia crassipes* and feeding amongst these plants. The presence of Yellow-breasted Crake *Porzana flaviventer* at Hato El Cedral has been mentioned previously (Kirwan & Sharpe 1999) and it is likely that the ranch holds significant populations of Rallidae whose distributions are known incompletely at present.

RUSTY-FLANKED CRAKE *Laterallus levraudi*

This Venezuelan endemic is known from coastal Falcón, Yaracuy, Carabobo and Miranda as well as from an artificial pond at 1,400 m in Yacambú National Park, Lara

(Meyer de Schauensee & Phelps 1978, Boesman 1997). In the last ten years it has been recorded from seven sites in Falcón and Carabobo, where the total population is estimated to be 40-100 pairs (Boesman 1997). A new record is of a bird further south at Boconoito (400 m), Barinas in the foothills of the eastern slope of the Andes in February 1998 (DAE, JdH, JS). The bird was feeding at the edge of tall, emergent cane at a small pool some 6-8 m diameter. This species is considered Vulnerable (IUCN 1996, Rodriguez & Rojas-Suarez 1999), although with increased search effort several new sites have been discovered in recent years (see Boesman 1998). It is probable that deforestation along the eastern flank of the Andes, together with the construction of dykes and pools for watering cattle, has allowed the species to spread southwards through Falcón, Yaracuy and Barinas. Records are to be expected for Portuguesa. The total population is likely to be much higher than that known at present and a thorough census of populations at known and potential sites should now be carried out during May - August when the species is most vocal (Boesman 1997), together with an analysis of ecological requirements in order that conservation action can be taken.

PAINT-BILLED CRAKE *Neocrex erythrops*

This widespread but local species has not been previously found above 1,000 m (Friedmann & Smith 1950; Meyer de Schauensee & Phelps 1978); furthermore there appear to be very few records in Venezuela south of the Orinoco. A single bird was found by soldiers at the well-lit Luepa Fort (1,400 m) along the main Troncal 10 road in the Gran Sabana, Canaima National Park, Bolivar on a rainy evening on 7 July 1997 and photographed (Hugo Arnal, CJS). It is probable that this bird was migrating or dispersing, since influxes are recorded in August in Caicara, Monagas (Friedmann & Smith 1950) and it has also been found at lighted windows at Rancho Grande (1,000 m), Aragua in May and June (Schäfer & Phelps 1954). Specimens obtained at well-lit buildings in Paramaribo, Surinam in July and February were also thought to be migrants (Haverschmidt & Mees 1994). Vagrancy in this species has been documented elsewhere (Arnold 1978, Blem 1980, Remsen & Parker 1990).

SUNGREBE *Heliornis fulica*

This lowland species is known north of the Orinoco from the Río Meta, Apure and Caicara, Monagas (Meyer de Schauensee & Phelps 1978). An unusual record is of a freshly dead bird found at Laguna de Mucubaji (3,500 m) at the head of the Santo Domingo valley, Mérida in October 1994 (DAE). The corpse was retrieved by park guards and identified by DAE. It was subsequently stuffed and mounted by personnel from the National Institute of Parks (INPARQUES). The presence of this species at such high altitude is extraordinary, even in the light of the variety of lowland species found at unusually high altitudes in the Santo Domingo valley, and is probably attributable to a bird expiring whilst moving between watersheds on either side of the Andes. However, the nearest known populations west of the site at which the corpse was collected are 160 km away in eastern Colombia.

BLACK-BELLIED PLOVER *Pluvialis squatarola*
This species has been recorded as a boreal winter resident from the Caribbean islands of Los Roques, La Orchila and Margarita and the coast in Zulia and Aragua (Meyer de Schauensee & Phelps 1978). The first inland record is of three in winter plumage at wetlands at Hato El Cedral, Apure, in February 1992 (DAE, Richard ffrench). The black axillary patch was clearly visible.

ORANGE-CHINNED PARAKEET *Brotogeris jugularis*
This species is restricted to the north of the Orinoco, where it has been collected as far east as Guárico (Meyer de Schauensee & Phelps 1978). Three were observed feeding in a large tree at Parque Cachamay, Puerto Ordaz, Bolívar in January 1998 (DAE), the most easterly record for this species. It is possible that these were escaped cage birds or that deforestation has allowed this species to spread over secondary habitats along the southern bank of the Orinoco.

RUSTY-FACED PARROT *Hapalopsittaca amazonina*
This high-altitude parrot is known from Páramo de Tamá, Táchira (*H. a. amazonina*) and from north Táchira to Mérida (*H. a. theresae*) (Meyer de Schauensee & Phelps 1978). A new record is of four flying at Sector El Campamento (2,170-2,600 m) along the north flank of Guaramacal National Park, Trujillo in January 1999 (DAE) and six at the same place in February 1999 (DAE, SLH). The birds flew past at a distance of 25 m and the scarlet shoulders, copper-coloured head and relatively short tail (in comparison with *Amazona* sp.) were noted. This is a range extension of 40 km. Given that this species is considered Endangered (Desenne & Strahl 1994, IUCN 1996, Rodríguez & Rojas-Suarez 1999), the current record is noteworthy, as it indicates that the range and available habitat are slightly greater than previously thought.

LITTLE NIGHTJAR *Caprimulgus parvulus*
In Venezuela this species has been recorded from Zulia, the north-central states of Aragua, Distrito Federal and Miranda and northern Bolívar (Schwartz 1968, Phelps and Phelps 1958). A bird was captured at night at Hato Piñero (200 m), Cojedes in February 1984 (SLH, RSR) and it was observed and tape-recorded there on several occasions in 1989 and 1990 (Davis Finch, David Fisher & GAR). It has also been tape-recorded once at Hato El Frio (100 m), Apure in February 1995 (DAE) and once at Hato El Cedral (100 m), Apure in January 1998 (GAR). In addition, there is apparently a specimen record from San Camilo in western Apure (SLH *in litt.*). These records extend the species' known range into the llanos and suggest that the range of the largely Venezuela subspecies *heterurus* is probably contiguous, rather than disjunct as shown in Cleere & Nurney (1998). In our experience, this species is not found in open, grassy country in the llanos, but prefers gallery forest edge as described by Schwartz (1968).

GORGETED WOODSTAR *Acestrura heliodor*

This species has been recorded locally from 2,200 to 3,000 m in Mérida (Meyer de Schauensee & Phelps 1978). A female was observed at a much lower altitude in subtropical forest along the San Isidro Tunnel trail at 1,500 m on the eastern slope of the Andes in Barinas on 28 November 1995 (RS, GAR). The bird was perched on a low branch for several minutes, which allowed a good view through a telescope of its distinguishing rufous rump (RS, GAR). This species had not previously been recorded from the eastern slope of the Mérida Andes (Phelps & Phelps 1958, SLH *in litt.*).

VIOLACEOUS TROGON *Trogon violaceus*

This species is known from north of the Orinoco only from the Andes in Zulia, Táchira, Mérida and Barinas and there is a specimen from northern Cojedes (Phelps & Phelps 1958, Lentino 1978, Meyer de Schauensee & Phelps 1978). One male was seen and tape-recorded in a forest clearing in the Cuenca Media del Río Caripe (245 m), Monagas (DAE, IJCF, GPC) on 12 December 1996. In addition, this species is quite common at Caño Colorado, Monagas (Peter Boesman *in litt.*). These Monagas records represent a northerly range extension of 180 km from the nearest records south of the Orinoco.

RINGED WOODPECKER *Celeus torquatus*

This species has previously been reported north of the Orinoco only in Jobure, Delta Amacuro (Meyer de Schauensee & Phelps 1978) and in Caño Colorado, Monagas (Boesman 1995). Two birds were seen and tape-recorded in humid tropical forest in the Cuenca Media del Río Caripe (245 m), Monagas (DAE, IJCF, GPC) on 15 December 1996. This represents the most northerly record of this species and suggests that its distribution extends into the lowlands of south-east Sucre.

WHITE-BROWED ANTBIRD *Myrmoborus leucophrys*

A male was seen and tape-recorded near the Yacambú Dam (1,100 m) on the eastern slopes of Yacambú National Park, Lara on 1 June 1999 (DAE, RSR, MA and several other observers). This is the most northerly record, with the nearest previous record in Barinas (Phelps & Phelps 1963, Meyer de Schauensee & Phelps 1978), an extension of 110 km.

BLACK-CHINNED ANTBIRD *Hypocnemoides melanopogon*

This species is known north of the Orinoco from Río Zuata, Guárico and the Delta Amacuro (Meyer de Schauensee & Phelps 1978) and Caño Colorado, Monagas (Boesman 1995). We present a more northerly record of a male seen and tape-recorded in Caño Ajíes, Sucre on 7 August 1998 (GAR).

NORTHERN WHITE-CROWNED TAPACULO *Scytalopus atratus*

This species is known from the Sierra de Perijá in north-west Zulia and in the eastern Andes in south-west Táchira (Phelps and Phelps 1963, Meyer de Schauensee &

Phelps 1978), both mountain ranges isolated from the rest of the Venezuelan Andes by dry lowlands. A significant range extension is an individual observed and tape-recorded at the San Isidro Tunnel (1,500 m) on the eastern slope of the Andes on 15 January 1991 (SLH, Kevin J. Zimmer). The species was also seen and tape-recorded at the same locality on 22 December 1992 (Jeff Blincow *in litt.*), during February 1997 (GAR) and again in February 1998 (DAE, SLH). The plumage was similar to Rufous-vented Tapaculo *Scytalopus femoralis* except for the presence of a prominent white crown patch (GAR). We follow Krabbe & Schulenberg (1997) in treating *nigricans*, the taxon to which these records refer, as a subspecies of *S. atratus* rather than *S. femoralis* (Meyer de Schauensee & Phelps 1978). These records represent a new population for the Mérida Andes and a range extension of c. 200 km.

TAWNY-RUMPED TYRANNULET *Phyllomyias uropygialis*
In Venezuela, this species has only been recorded at Páramo La Negra (3,100 m) in west Mérida (Phelps & Phelps 1963, Meyer de Schauensee & Phelps 1978). However, since January 1989 individuals have been observed throughout the year in the grounds of the Hotel Los Frailes at 2,900 m at the head of the Santo Domingo valley in north-east Mérida (DAE, SLH, GAR and many other observers).

LARGE-HEADED FLATBILL *Ramphotrigon megacephala*
This bamboo specialist exhibits a disjunct distribution in South America with major populations in south-east Brazil (and adjacent Paraguay and Argentina), south-western and north-western Amazonia as well as smaller outlying populations in north-west Colombia and north-west Venezuela (Ridgely & Tudor 1994). Venezuelan records are from the region of Yaracuy, Barinas and Apure (Phelps & Phelps 1963, Meyer de Schauensee & Phelps 1978). We present sight records from the coastal foothills on the north slope of the Coastal Cordillera in Henri Pittier National Park, Aragua. An individual was seen in bamboo at La Trilla (60m), near Turiamo in January 1985 (A. Altman, K. Altman and C. Parrish). There were several subsequent observations (SLH *in litt.*), including an individual found in bamboo in the same place on 18 November 1994 (Simon Boyes, GAR). Another was located 18 km east in the same type of habitat at 300 m elevation near Choroní in January 1995 (GAR). This population appears to be separated by 80 km from the closest known populations of Yaracuy by the mountains of the Coastal Cordillera. The species had not previously been reported from the Henri Pittier National Park (Lentino & Goodwin 1993).

VENEZUELAN FLYCATCHER *Myiarchus venezuelensis*
Specimens of this species have been obtained along the Caribbean coast from west Zulia to the Distrito Federal as well as from Margarita Island and north-east Bolívar (Phelps & Phelps 1963, Meyer de Schauensee & Phelps 1978, Lentino *et al.* 1984). Since 1993, it has also been observed and tape-recorded at various sites within Hato El Cedral, Apure, a range extension of 250 km from the nearest recorded population in coastal Venezuela (GAR, CJS, Paul Coopmans *in litt.*). In addition one was seen in

gallery forest edge along the Caño Guaritico at Hato El Frio on 28 January 1995 (KW, CJS and several other observers) and another at the lodge at the same ranch on 21 November 1995 (EM, CJS and several other observers). In all cases, this was noted as a rather large *Myiarchus*, showing no rufous on the tail from below and the head was concolourous with the mantle. The call, heard on all occasions and tape-recorded twice, was a repeated, plaintive "wheeer" with some variations, reminiscent of the call of Dusky-capped Flycatcher *M. tuberculifer*. In the low llanos of central Apure it appears to be an uncommon resident alongside three other congenerics (Ascanio & Rodríguez 1996). It inhabits gallery forest and '*matas*' (groups of trees in drier areas which are not seasonally flooded). The Short-crested Flycatcher *M. ferox* favours *matas* as well as the more humid patches of gallery forest and its presence is verified by tape-recordings (GAR), whilst the Brown-crested *M. tyrannulus* is found in drier gallery forest and scrub. The Dusky-capped Flycatcher *M. tuberculifer*, the least common of the four, prefers more mesic habitats and occurs here in semi-humid gallery forest.

TRINIDAD EUPHONIA *Euphonia trinitatis*

This species has been recorded mostly below 600 m (Meyer de Schauensee & Phelps 1978; Ridgely & Tudor 1989), but has occurred as high as 850 m (Schäfer & Phelps 1954). However it has been observed in Parque Vinicio Adames (1,150 m), on the south-west edge of Caracas in June 1995 and a pair were seen visiting a nest in a tree in Caracas Botanical Garden (900 m) during October 1998 (GAR). One was singing regularly during August and September 1999 at 1,450 m in San Antonio de los Altos, Miranda (GAR).

GOLDEN-CROWNED TANAGER *Iridosornis rufivertex*

This species is distributed locally through Andean temperate forests from northern Peru north to extreme south-west Venezuela (Ridgely & Tudor 1989). In Venezuela, it has been previously recorded only from the Páramo de Tamá close to or at the tree-line (Phelps & Phelps 1963, Meyer de Schauensee & Phelps 1978). An important and very unusual new record is of two birds with a mixed species flock in cloud forest at 2,500 m along the Pico Humboldt trail in central Mérida on 6 July 1996 (GAR, Ellen Shaughnessy and five other observers). The birds were observed at close quarters in good light under which conditions confusion with other species is unlikely. This record is unusual because the species has previously not been found north of the Táchira Depression and also because of the low altitude of the sighting. We therefore suggest treating it as hypothetical until photographs, sound recordings or a specimen can be obtained. This would be the most northerly record of a bird some 200 km outside its known range.

GLAUCOUS TANAGER *Thraupis glaucocolpa*

This species has been previously recorded from the length of the Caribbean coast and as far inland as south Guárico (Phelps & Phelps 1963, Meyer de Schauensee &

Phelps 1978). Actually it is fairly common at several sites in Apure and probably in suitable habitat throughout the state, a south-easterly extension to the known distribution of 150-200 km. It can readily be observed at *matas* in Hato El Cedral and Hato El Frio (DAE, GAR, CJS).

MAGPIE TANAGER *Cissopis leveriana*

This species has been previously recorded as far north as the Andes of Mérida and Barinas (Phelps and Phelps 1963, Meyer de Schauensee & Phelps 1978; Ridgely & Tudor 1989). We present new records from 40-80 km further north on the eastern slopes of the Andes as follows. One in a clearing along the Boconó - Guanare, road, Trujillo in February 1998 (DAE, JdH, JS) and another on the Sanare - Guanare road (1,000 m), Lara on 1 June 1999 (DAE, RSR, MA and several other observers). The increasing deforestation of the foothills of the eastern slope of the Andes has almost certainly aided the spread of secondary forest and edge species like this one.

SOOTY GRASSQUIT *Tiaris fuliginosa*

This locally distributed species was previously known from the Sierra de Perijá in Zulia, the Coastal Cordillera and Cerro Roraima in Bolívar (Meyer de Schauensee & Phelps 1978). There are also specimen records from Cabudare, Lara and Calderas, Barinas in the Andes (SLH *in litt.*). A new record for the Andes is of a male moving through bamboo (*Chusquea* sp.) at Sector El Campamento (2,300 m), Guaramacal National Park, Trujillo in February 1998 (DAE, JdH, JS). This is the highest altitude at which the species has been recorded in Venezuela (SLH *in litt.*).

LINED SEEDEATER *Sporophila lineola*

This austral migrant has been recorded in Venezuela to 500 m (Meyer de Schauensee & Phelps 1978) and in South America to 1,200 m (Ridgely & Tudor 1989). On 10 July 1997 a male and two females were seen feeding in roadside grasses at the National Guard post at Km 123 (1,440 m) on the Sierra de Lema. Ten minutes later two males and two females were seen feeding in open grassland by the roadside at Luepa (1,450 m), some 10 km further south (CJS).

SLATY FINCH *Haplospiza rustica*

This bamboo specialist is known from Sierra de Perijá in Zulia, the Distrito Federal and Chimantá in Bolívar (Meyer de Schauensee & Phelps 1978) with recent records from Táchira (Hilty 1999). One was seen at the roadside between Boconó and La Vega (2,800 m), Guaramacal National Park, Trujillo in February 1998 (DAE, JdH, JS), some 200 km from the sites at which it has previously been recorded. The nomadic behaviour of this little known species has been noted elsewhere (Barrajas & Phillips 1994, Hilty 1999). The bird was feeding on grasses in an area dominated by bamboo (*Chusquea* sp.): its preference for seeding *Chusquea* was noted by Hilty (1999), yet stomach contents have so far proven to consist largely of grass seeds (Stiles & Hespenhide 1972, Barajas & Phillips 1994).

Additional records

The following are more minor altitudinal and geographic range extensions. **Brown Tinamou** *Crypturellus obsoletus:* two individuals heard in Avila National Park (1,450 & 1,490 m) in May 1999 (CJS) and several tape recorded in Macarao National Park (1,000m), Distrito Federal in July 1999 (GAR) represent a slight easterly range extension, the former a new population on a mountain range separated from previous records by the dry valley of Quebrada Tacagua. **Least Grebe** *Tachybaptus dominicus*: we have more than thirty records of singles and pairs from pools on both eastern and western slopes of the Mérida Andes up to 2,300 m since November 1995. **Green Heron** *Butorides virescens*: a boreal winter resident usually considered to be restricted to the Caribbean coast (Meyer de Schauensee & Phelps 1978), we have further inland records. One adult seen close to Altagracia south of Guatopo National Park, Aragua in November 1995 (CJS), and one or two per year for Hato El Frío and Hato El Cedral in the llanos of Apure since 1995 (CJS, DAE, GAR); an unusually high record is of an adult at Laguna Miraflores (2,300 m), La Azulita road, Mérida in January 1998 (DAE, CJS). **Southern Pochard**: *Netta erythrophthalma*: a single male at Hato El Cedral in June 1989 (GAR); although thought not to associate with other species (Meyer de Schauensee & Phelps 1978) this bird was in a mixed flock of Whistling-Ducks *Dendrocygna*. **Solitary Eagle** *Harpyhaliaetus solitarius*: a small south-easterly range extension is of two separate records in the Interior Cordillera close to Turgua (1,200 m), Miranda in February 1993 (DAE, GAR). **Black-and-chestnut Eagle** *Oroaetus isidori*: a single bird was observed above Sector El Campamento (2,700 m), Guaramacal National Park, Trujillo in February 1999 (DAE, SLH, JdH). This is a small (40 km) extension northwards along the Venezuelan Andes. **Black Curassow** *Crax alector*: typically a humid forest species, 3-5 individuals were observed in dry forest along the Tumeremo - El Callao road, Bolívar in January 1998 (DAE, SLH). **Southern Lapwing** *Vanellus chilensis*: two pairs appear to have become resident at the Hotel Paso Real in the upper reaches of the Santo Domingo valley (2,900 m), Mérida, since 1996. **Black Tern** *Chlidonias niger*: a winter plumaged individual was observed near Chichiriviche, Falcón on 10 February 1999 (Richard Coomberg, GAR). There are also unpublished sight records from Paraguaná, Falcón and Zulia (P. Alden, C. Parrish, SLH). **Lilac-tailed Parrotlet** *Touit batavica*: a small flock of 4-6 individuals was seen at the rather low elevation of 60 m along the Turiamo Road near Ocumare, Henri Pittier National Park, Aragua (GAR); this species can also be regularly observed feeding on *Clusia* in the Parque del Este city park (900 m) in Caracas, Miranda (DAE). **Collared Inca** *Coeligena torquata*: one was seen along the Boconó - La Vega de Guaramacal road in Guaramacal National Park, Trujillo on 21 February 1998 feeding on flowers at the road side at 2,100 m elevation (DAE, JdH, JS). There are also unpublished specimen records for Cuevas de Carache and Los Palmares, Trujillo (SLH *in litt.*). **Ringed Kingfisher** *Ceryle torquata*: one was seen at Laguna El Blanquito (1,300 m), Yacambú National Park in June 1999 (DAE, RSR) and it has been seen fairly frequently along the Chama and Albarregas in the lower part of Mérida city (1,400 m), close to the

Hotel Belensate, Mérida since 1990 (GAR). **Spot-breasted Woodpecker** *Colaptes punctigula*: solitary individuals have been observed sporadically since 1995 at San Antonio de los Altos (1,450 m), Miranda (GAR). **Sharp-tailed Streamcreeper** *Lochmias nematura*: this species has regularly been seen below Rancho Grande Biological Station (1,000 m), Henri Pittier National Park, Aragua since 1995 (RS, Mark Van Beirs, GAR, CJS). **Riverside Tyrant** *Knipolegus orenocensis*: one seen in lakeside bushes at Hato El Frio in November 1995 (CJS), another in seasonally flooded savanna at Hato El Cedral in March 1998 (DAE, Edward Sanderman) and a further two observed in damp scrub close to the Matiyure camp at the same ranch in February 1999 (MB, RS, CJS). **Grayish Mourner** *Rhytipterna simplex:* although previously recorded north of the Orinoco river in Monagas state by Boesman (1995), we present a small northerly range extension of one seen and tape recorded on the basin of the Caripe River (245 m), El Guácharo National Park, Monagas in April 1997 (DAE). **Southern Nightingale Wren** *Microcerculus marginatus*: one observed in semi-deciduous forest at sea level in Morrocoy National Park, Falcón in March 1992 (DAE). **Prothonotary Warbler** *Protonotaria citrea*: a single male was observed at Hotel Los Frailes (2,900 m) at the head of the Santo Domingo valley in north-east Mérida in November 1990 (GAR).

Acknowledgements

We thank Steven L. Hilty and Miguel Lentino for careful revision of the text and for permission to cite unpublished information. Miguel Lentino is also warmly thanked for providing access to the specimens and library of the Colección Ornitológica Phelps in Caracas. Jeff Blincow, Peter Boesman, Paul Coopmans and Chris Parrish kindly gave permission to include additional sight records. Mark Beaman gave permission to use sight records from Birdquest tours. John Bates drew the attention of the authors to one of the references consulted and F. Gary Stiles kindly sent information on personal observations of Slaty Finches. Travel opportunities were provided through work with: Birdquest, Borderland Tours, Caligo Ventures, MOT Nature Tours, Tropical Audubon Society, Tur-V (formerly TurVen Tropical Travel), Venezuelan Audubon Society (SCAV) and Victor Emmanuel Nature Tours. Our companions in the field were María Allen (MA), Mark Beaman (MB), Irving J. Carreño F. (IJCF), Josep del Hoyo (JdH), Alan Greensmith (AG), Steven L. Hilty (SLH), Eric Molgaard (EM), Gilberto Perez Chinchilla (GPC), Robert S. Ridgely (RSR), Jordi Sargatal (JS), Richard Schofield (RS), Dave Stemple (DAS), Rick Taylor (RCT), Kees Wagtmans (KW) and many others too numerous to mention in a single paragraph. We thank them all for their help.

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Confirmation of the position of the likely type-locality of *Chalcomitra rubescens stangerii*

by Robert A. Cheke

Received 19 January 2000

Moore (1995) argued convincingly in favour of Shelley's and Amadon's suggestions that the type-locality of the subspecies of the Green-throated Sunbird *Chalcomitra rubescens stangerii* (Jardine) should be taken as Bioko (formerly Fernando Po), Equatorial Guinea, and not the River Niger, Nigeria (Shelley 1876-1880, Amadon 1953). The original designation probably arose as the bird had been collected by the 1841 expedition to the River Niger.

Because the collection of the type was discussed during an account of T.R.H. Thomson's visit with C. G. Roscher to Robert Jamieson's settlement near Bassa-pu (3°43'N, 8°41'E), Bioko (Allen & Thomson 1848), Moore suggested that the type-locality could have been this settlement. However, because the account was assumed to follow a chronological order, she thought that the visit to the settlement had taken place in April 1842, after Dr Stanger had left the island with the specimen in 1841. Moore (pers. comm.) now considers that the assumption about chronological order is unjustified and that Thomson only visited Jamieson's settlement once, so the description of the collection of the bird does refer to the shooting of the type specimen. The settlement, which Thomson and Roscher reached by sea, was stated as being at Shark River near Bassa-Pu, on the northwest coast, not far from Clarence [= Malabo], but Moore was uncertain of its precise position. However, Jamieson's settlement was at John Beecroft's house (*hacienda*) at "New Town" and is illustrated in Martin del

Molino (1993, Fig. 19). From this illustration, Dr Jordi Mas (pers. comm.) determined the precise location of New Town as being at the mouth of the river still known locally as the Rio Tiburones (= sharks), near Basupu (3°43'N, 8°41'E), *c.* 1.5 km northeast of Punta Beecrof (as spelt on current maps: 1:50,000 Instituto Geográfica Nacional de España, 1980, 1981) and 2 km due west of the southern end of Malabo international airport. The river is marked on current maps as the River Lopese (or Lopesa) and is shown as river no. 23 in the map of McCall *et al.* (1998), who nevertheless also referred to it as the River Tiburones.

On 25 April 1999, Dr Mas and a local guide, Salvador Nabacolle, escorted me to the site, which I estimated from a Global Positioning System (GPS) as being at 3°45'N, 8°41'E. No remains of the settlement, illustrated as being at the end of a spit of land on the west side of the river and described as being on a small promontory (Allen & Thomson 1848), were discernible. There was, however, an overgrown area of formerly cultivated land nearby and it was probably here that in October or November 1841 T. R. H. Thomson collected the bird (perhaps from a pawpaw tree *Carica papaya,* Moore 1995, 2000 and *in litt.*). It was later described as *Nectarinia stangerii* (= *C. rubescens stangerii*) after Dr William Stanger, a member of the 1841 Niger expedition who brought the specimen back to England and whose life is summarised by Moore (2000).

I am grateful to Amberley Moore and Dr Robert Prŷs-Jones for information and comments on an earlier draft. I also thank Dr Jordi Mas for drawing my attention to Martin del Molino's book and for arranging the visit to "New Town".

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A description of the nest and eggs of the Madagascar Teal *Anas bernieri*

by H. Glyn Young, Richard E. Lewis & Felix Razafindrajao

Received 19 January 2000

The Madagascar or Bernier's Teal *Anas bernieri* is one of the world's least known wildfowl (Anatidae). Endemic to Madagascar and restricted to western coastal areas, this species has been observed or studied so infrequently (see Young *et al.* 1997) that it was at one time considered to be extinct and only re-discovered in 1969 (Salvan 1970, Andriamampianina 1976). *Anas bernieri* is the western-most representative of the grey teal (five species, see Ripley 1942, Marchant & Higgins 1990 and Young *et al.* 1997 for details of species limits). The grey teal have been linked traditionally with the New Zealand brown teal *A. chlorotis*, *A. aucklandica* and *A. nesiotis* in making up the "austral teal" (Delacour & Mayr 1945, Livezey 1991). This latter association may be misleading, however, brown teal being distinct in many aspects and probably not closely related to the grey teal (Johnson & Sorenson 1998, Daugherty *et al.* 1999). The eggs and nest of the Madagascar Teal have never been described. Only a single bird, a female, appears to have reached Europe alive, in 1927 (Delacour 1956), and this bird never laid. There is curiously, however, one egg in a European museum collection, with no accompanying details (Schönwetter 1967, Stephan *in litt.* 1997)(see below).

In 1993, as part of a wider conservation strategy for the Madagascar Teal, four males were captured at Lake Bemamba, western Madagascar, and exported to the Jersey Zoo, headquarters of the Durrell Wildlife Conservation Trust (Channel Islands, Great Britain)(Young *et al.* 1993). Four further birds, including two females, were captured at Bemamba in 1995 and sent to Jersey. The species first bred in captivity in 1998 (Young 1999). All captive birds are covered by a loan agreement with the government of Madagascar.

The majority of all observations, and the captures, of Madagascar Teal had been during the dry season (April – October) when there was no obvious nesting activity; since 1997 efforts to locate nesting pairs have been concentrated during the wet season (November – March). The first nest of *A. bernieri* was found in coastal mangroves at Lake Ambaratamaty, western Madagascar, in March 1997. Seven further nests have been found during the seasons 1998 - 2000 in mangrove forest close to the first site. In 1998, Madagascar Teal were reported nesting in mangroves at Ampasindava, north western Madagascar (Halleux 1998).

Nest sites

All nests located during the four nesting seasons 1997 – 2000 have been in holes in Grey Mangrove *Avicennia marina* above or close to water. Nest holes have been found 1-3 m above the water surface, and appear to be very vulnerable to human predation, a view supported by other observers (A. Feistner pers. comm.). Madagascar Teal at Ampasindava are also reported to nest in tree holes (Halleux 1998). Here, stands of large *Avicennia* are not common in mangroves and all nests found have been in large trees (40 cm dbh).

In captivity, ten females, given a variety of potential nest sites, have nested exclusively in hole fronted boxes (entrance 9 – 10 m above the ground) or in a hollowed tree trunk (entrance 1 m above the ground). No birds have shown interest in thick pond-side vegetation nor in boxes at ground level.

No nest material has been found in wild or captive nests. Eggs are laid directly on the substrate and covered with rotting wood or shavings until the clutch is completed and nest down from the breast of the female is added. The female alone incubates.

All other grey teal species are predominantly hole nesters although ground nests have been recorded. Female Grey *A. gracilis* and Chestnut Teal *A. castanea* are able to make nests on the ground from available vegetation (Marchant & Higgins 1990). The preferred nesting site of the Sunda Teal *A. gibberifrons* is not recorded but captive birds have nested in boxes, and in ground vegetation. Andaman Teal *A. albogularis* are reported to nest mostly in trees (Phillips 1923), although both captive and wild (Finn 1921) birds have been recorded nesting on the ground. All species readily visit mangrove and other coastal forest, particularly Sunda and Andaman Teal.

Nest down

Nest down has been collected in captivity from all grey teal species. There is no obvious difference in down feather colour between Grey Teal, Andaman Teal and Chestnut Teal; all are grey with brownish centres. Down feathers of the Sunda Teal are a darker grey with less brown at the centre. In contrast, the down feathers of the Madagascar Teal are smaller, finer and a very pale grey colour with brownish centres.

Eggs

In 1998 (Jun – Jul) 19 eggs were laid in captivity (average clutch size (n=3) 6.3), both wild-caught females laying, and one re-laying after eggs were taken for artificial incubation. In 1999, 55 eggs were laid by four females hatched in captivity in 1998 (Apr – Jul) (full clutch size (n=6) 7.0) with a further 13 eggs laid by the two wild-caught females (Jun – Jul) (clutch (n=2) 6.5). In 2000 seven captive bred females laid 66 eggs (Apr – Jul) (full clutch size (n=10) 6.6) and one of the wild-caught females laid nine eggs in two clutches (Jun – Jul). Three addled eggs were taken from a nest in Madagascar in March 1997 (see Table 1).

Eggs were smooth, elliptical and pale fawny-buff to yellowish-buff in colour. Egg colour contrasts with the creamy or white eggs of *A. gracilis* (Frith 1982) and the other grey teal species (*castanea* (Frith 1982), *gibberifrons* (in captivity, Young pers. comm.) and *albogularis* (Delacour 1956)). The eggs were smaller than those of other grey teals (Table 1).

TABLE 1

Egg dimensions of grey teals, genus *Anas*

	Egg length x breadth; range (mean) Clutch; range (mean)	*n*	Source
Madagascar Teal (1) *A. bernieri*			
Egg LxB	40.6-49.8 x 32.4-37.6 (46.0 x 34.6)	160	Captive birds Jersey Zoo
Clutch	3-9 (6.75)	23	Captive birds Jersey Zoo
Madagascar Teal (2)			
Egg LxB	43.3-45.0 x 31.6-33.1 (44.1 x 32.4)	3	Madagascar
Grey Teal *A. gracilis*			
Egg LxB	49.0-58.0 x 35.0-42.0 (50.0 x 36.0)	126	Frith 1982
Clutch	6-11 (8.3)	54	Marchant & Higgins 1990
Chestnut Teal *A. castanea*			
Egg LxB	47.6-59.9 x 43.3-41.2 (53.0 x 38.0)	417	Marchant & Higgins 1990
Clutch	6-13 (8.8)	39	Marchant & Higgins 1990
Egg LxB	35.0-57.0 x 35.0-41.0 (52.0 x 37.0)	366	Frith 1982
Sunda Teal *A. gibberifrons*			
Egg LxB	44.4-54.0 x 33.4-38.8 (49.25 x 35.8)	109	Captive birds Jersey Zoo
Clutch	6-11 (8.3)	14	Captive birds Jersey Zoo
Andaman Teal *A. albogularis*			
Egg LxB	47.3-51.2 x 35.7-37.3 (49.0 x 36.3)	10	Schönwetter 1967
Clutch	10	2	Phillips 1923

Museum egg

Schönwetter (1967) listed one egg of *A. bernieri* in the Nehrkorn Collection (dimensions: 50 x 36 mm), with no details of its colour or texture. The egg is not listed in the first edition of the collection catalogue (Nehrkorn 1899) but it appears as *Nettium bernieri* in the second edition (Nehrkorn 1910: page 87) – there are, unfortunately, no details given of the egg's origin (Stephan *in litt.* 1997). In view of the large size of this egg, it is likely that it was not laid by a Madagascar Teal. The Nehrkorn Collection is today in the Museum für Naturkunde, Berlin.

The Australasian/Indonesian grey teal (*gracilis, castanea, gibberifrons, albogularis*) undoubtedly represent four very closely related taxa; indeed, *gracilis* and *castanea,* while morphologically dissimilar, are difficult to separate by courtship behaviour (Prawiradilaga 1985) or genetically (Sraml *et al.* 1996; Young *et al.* 1997; Daugherty *et al.* 1999). The initial data collected on the reproduction of the Madagascar Teal are further indications of the distinct nature of this endangered species.

Acknowledgements

Anna Feistner, Professor Janet Kear, Wilhelm Meise, Professor B. Stephan (Curator (retired) Museum für Naturkunde, Berlin), Michael Walters and Murray Williams gave their support and advice during the preparation of this paper.

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On the dates of publication of Boucard's *Genera of Humming Birds*

by Michael Walters

Received 26 January 2000

Boucard's *Genera of Humming Birds* appeared in parts as supplements to Boucard's own journal *The Humming Bird*. It is through paginated but the typeface differs somewhat as it proceeds. Later the parts were gathered and issued with a title page. The publication date has usually been quoted as 1895, the final date on the title page. However, Ernst Hartert annotated the dates of publication of the various parts on the copy in the Rothschild Library at Tring, and as these seem not to be generally known, they are given here. His comments below are quoted verbatim.

"As the dates of publication Mr. Boucard gave on the final title page 1894-1895, on the second title page 1893-1895, but both statements are wrong! All the parts were issued and sent out with *The Humming Bird*.

- Pages 1-56 appeared in 1892
- Pages 55-106 appeared in 1893 (55 and 56 being double! but the letterpress totally different)
- Pages 107-202 appeared in 1894
- Pages 203-266 in March 1895
- Pages 267-283 in June 1895 [*There is no duplication here, Hartert must mean p. 282. M.W.*]
- Pages 283-330 in June 1895
- Pages 331-394 end of August or beginning of September 1895
- Pages 395-402 (the addenda) were issued October 1895 or later in that year, but before Xmas. E.H."

These dates of publication as given by Hartert were incorporated in vol. 5 of del Hoyo *et al.* (1999).

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The type-locality of *Sturnella magna quinta* Dickerman, 1989: a correction to the original publication

by Leo Joseph

Received 4 March 2000

After reviewing geographical variation in plumage and taxonomy of the South American populations of the Eastern Meadowlark *Sturnella magna*, Dickerman (1989) described a new subspecies, *S. m. quinta*, from Surinam and nearby parts of Brazil. The holotype of *S. m. quinta* is a specimen in the American Museum of Natural History (AMNH), AMNH 237404, with type-locality given by Dickerman (*op. cit.*) as "Frechal, Rio Surumu, Amapá, Brazil".

A problem arises with the type-locality as so given. In Paynter & Traylor's (1991) ornithological gazetteer of Brazil, Frechal in the Brazilian State of Amapá was cited as "not located" and Dickerman (1989) was given as the only reference to this locality in ornithological literature. On the other hand, Paynter & Traylor (1991) noted that Frechal, also spelt Flexal, is at 03°50'N, 60°32'W in what is now the Brazilian State of Roraima. Having done field work in the latter area (Joseph 1992), I became interested in the discrepancy and resolved to check the locality data on the labels of the holotype and other AMNH specimens of *quinta* cited by Dickerman. The discrepancy is worth checking for several reasons. Most importantly, several subspecies and intermediate populations of *S. magna* occur in the region encompassing Roraima and Amapá in Brazil as well as in nearby Venezuela, Guyana, and Surinam. It is therefore important that the type-localities of all taxa named from this region, e.g., *S. m. quinta*, be clear. Further, Roraima and Amapá do not share common boundaries; nor does Roraima share a border with Surinam where most of the range of *quinta* occurs. Thus, if a locality called Frechal does exist in Amapá there is no possibility that it is one and the same locality as that in Roraima (e.g., located on a common border and sometimes given as being in one political region and sometimes in another).

In the AMNH collection, there are 11 specimens of *S. magna* collected on the Lee Garnett Day Expedition of 1927-28 and which were assigned by Dickerman to *S. m. quinta*. The locality and date data on seven of these specimens, AMNH 237400-237406 (i.e., including the holotype of *S. m. quinta*), are "Frechal, Rio Surumu, N.E. Brazil", collected between 4 and 15 September 1927. Similarly, for the remaining four, AMNH 237407-237410, the locality and date data are "Limão, Rio Cotinga, N.E. Brazil", collected on 30 September and 1 October 1927. Nowhere on the labels of any of these specimens does "Amapa" or, for that matter, "Roraima" occur.

In fact, there can be no doubt that these birds were collected in Roraima, not Amapá. Three sources should suffice to make this point. First, G.H.H. Tate, who led the Day Expedition, a main aim of which was to collect the avifauna of Mount Roraima, twice published maps of the route taken through the state of Roraima by the Expedition

(Tate 1930a, b). Curiously, Frechal was shown on neither of these and I have been unable to find reference to Flechal in the corresponding texts. On both maps, however, Tate showed the Rio Surumu, the Rio Cotinga and Limão. Second, Chapman (1931) noted that the Day Expedition approached Mount Roraima from the south by way of the Rio Branco, the entire course of which is in the state of Roraima. He also cited the same 11 specimens of *S. magna* and assigned them to *S. m. monticola*, the subspecies he noted as "occurring in the savannas at the southern base of Roraima and thence southward to the Rio Surumu". Third, Gleason (1929) in a botanical report of the Day Expedition, at least twice referred to Frechal: on p. 394 ("Frechal, extreme northern Brazil" and again on p. 396 ("on the savanna at Frechal, south of Mt. Roraima, northern Brazil").

As noted, I have been unable to find Frechal indicated on a map. Though a more exhaustive search might be more successful, it is worth noting in this regard that Gleason (*op. cit.*) cited the holotype of the plant *Bowchidia parvifolia* as having been collected at Frechal on 30 September 1927. That is the same date that the Expedition collected two of its four Limão specimens of *S. magna*. From this we can infer that Frechal and Limão are likely to be very close together and that this could be the reason why Tate showed Limão but not Frechal on his maps.

There remains the fact that Paynter & Traylor (1991) gave the coordinates of Frechal, Roraima as 3°50'N, 60°32'W. Their source was USBGN (1963). They did note that its identification is uncertain and that it may be the site bearing this name at 3°25'N, 60°19'W near the range known as the Serra do Flechal. All ornithological references they gave to the locality are ultimately based on specimens from the Lee Garnett Day expedition held in the AMNH.

In conclusion, there is no doubt that the holotype of *S. m. quinta* was collected at Frechal in Roraima and that there is no locality, at least in ornithological literature, known as Frechal in Amapá. The type-locality of *S. m. quinta* should therefore be emended to be Frechal, Rio Surumu, Roraima, Brazil. The further checking that is required to determine whether the name *S. m. quinta* can validly be applied to populations between and including Roraima and Amapá is beyond the scope of this note.

Acknowledgements

I thank R.W. Dickerman and M. LeCroy for discussion and R.T. Chesser for allowing me to examine relevant specimens in the AMNH collection.

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Booby *Sula* colonies in the Mascarene area (Indian Ocean): extinctions, myths, and colour morphs

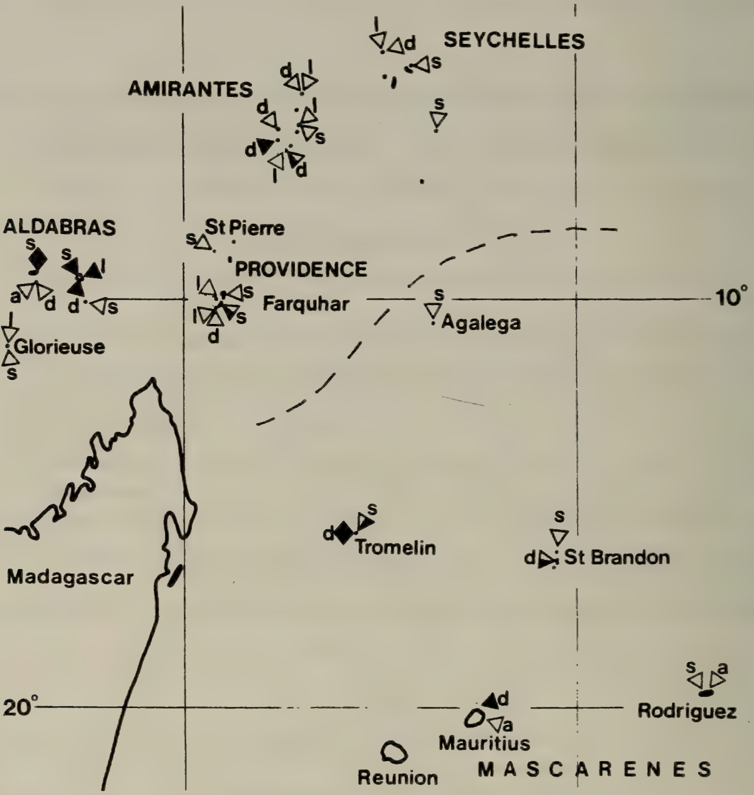
by Anthony Cheke

Received 16 March 2000

In a recent discussion on the significance of the distribution of two colour morphs of the Red-footed Booby *Sula sula* in the western Indian Ocean, Le Corre (1999) claimed that all but three known colonies (some now extinct) consisted largely (80%+) of white morphs, amongst which he included Rodrigues, Mauritius and Agalega. The three exceptions cited were Europa (Mozambique Channel) and the Glorieuses (with 80+% white-tailed brown morphs = 'brown' hereafter), and Tromelin (33% brown). He inferred from this distribution that there was little mixing between the colonies with high proportions of brown morphs and those dominated by white morphs, unlike the situation in the Pacific Ocean. Earlier, Stoddart (1981) had also assumed that colonies without a specific reference to colour-morphs consisted largely of white birds, although in the standard work on the genus, Nelson (1978) was very cautious in interpreting colony records, and gave only very limited indications of Red-foot colour morph distribution in the Indian Ocean; he was apparently unaware of the colony on Europa. The Red-footed Booby populations on Rodrigues, Mauritius and Agalega cited by Le Corre are extinct or never existed. The only boobies of any kind still surviving are Masked Boobies *S. dactylatra* which still nest in small numbers on Serpent Island off Mauritius (Feare 1978, Safford 1993, Bell *et al.* 1994, pers. obs. 1999). The situation on each island, outlined below, is very different; all three are currently part of the Republic of Mauritius. Brief comments on St. Brandon (=Cargados Carajos) and Réunion are added.

Rodrigues

Amongst the large numbers of seabirds breeding on the islets in the lagoon when the island was first described were two species of booby, known in the eighteenth century as the 'boeuf', largely white, and the 'tra-tra', largely brown or grey (Cheke 1987). For a long time these were considered to be white and brown morphs of the Red-footed Booby (e.g . Staub 1973), though the white bird was also tentatively referred to the Masked Booby (Bourne 1968) or even the Cape Gannet *S. (Morus) (bassana) capensis* (Milne-Edwards 1875), despite being reported to nest in trees. Nelson (1974, 1978)


SEYCHELLES
AMIRANTES
ALDABRAS
St Pierre
PROVIDENCE
Farquhar
Agalega
Glorieuse
10°
Tromelin
St Brandon
Madagascar
20°
Mauritius
Rodriguez
Reunion
MASCARENES
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s

Figure 1. Past and present distribution of booby colonies in the western Indian Ocean (omitting Europa, Mozambique Channel). Solid diamond - colony increased; Solid triangles - no known change in colony size; Open triangles - colony extinct; split triangles - colony reduced. Species codes: a - *Sula abbotti,* d – *S .dactylatra,* l – *S .leucogaster,* s - *S. sula* .

Adapted and updated from Feare (1978). Seychelles/Aldabra area data unadjusted apart from *S. leucogaster* (no longer occurs on Desnoeufs Island, Amirantes, and probably no longer occurs on Farquhar Atoll – Feare, pers. comm.) and *S. sula* which has increased on Aldabra (A. Burger pers. comm.), Mascarene area data from this paper & Le Corre (1996 - Tromelin).

recognised that Tafforet's description of the 'boeuf' best fitted Abbott's Booby *S. (Papasula) abbotti,* which was confirmed later (Cheke 1987) by further study of old texts (Tafforet 1726, Pingré 1763) not fully available to Nelson. In the meantime Bourne (1976) had tentatively referred an illustration of a subfossil bone of a large booby from Rodrigues, originally ascribed to the Red-footed Booby (Milne- Edwards 1873) to Abbott's Booby; the actual bone "cannot be traced" (Bourne, *loc. cit.*). The last recorded occurrence of a 'boeuf' was in 1832, when a specimen was collected for Col. Dawkins on behalf of Charles Telfair (Telfair 1833) - however, on being exhibited at the Zoological Society in London it was identified as "the lesser gannet of Dr. Latham, the *Sula candida,* Briss. and *Pelecanus piscator,* Linn." (editor's note following Telfair, *ibid.* - i.e. a white-morph Red-footed Booby). The name 'boeuf' comes from the resemblance of the bird's call to that of cattle (Tafforet 1726, Pingré 1763); only Abbott's Booby has a mooing call of this kind (Nelson 1974, 1978, Cheke 1982).

Two early travellers described the 'tra-tra' in sufficient detail for identification to be attempted. The first was Leguat (1707), who described only one species which he called by the standard French name 'fou' (= booby or gannet, but often used in the past for other easily caught seabirds, Cheke 1982). After recounting how they were regularly robbed by Frigate Birds *Fregata* sp., he described the 'fous' as "having the back chestnut and the belly white, the beak pointed, four inches long, very large at the head end and a little toothed along the edges, the legs short, the feet more or less as a duck's and pale yellow". Tafforet (1726), wrote that "the *tra-tra,* so-called because it always calls in that way, is a bird which is not as big as the *boeuf* and has a beak similar to the *boeuf* 's, and is coloured grey a bit white on the belly; they perch and make their nests in the trees and incubate in turns but they are in bigger quantity than *boeufs,* when they are little they are all white with the beak all black, and when they are big [=adult] they are grey and the beak greenish" [my translation]. The French astronomer Guy Pingré, on the island for the transit of Venus in 1761 (Pingré 1763), whose account of the 'boeuf' was very accurate (Cheke 1987), unfortunately only described nestling 'tra-tras', so his account adds nothing on the question of colour morphs. 'Fous'/boobies were reported by numerous subsequent visitors (e.g. Gardyne 1846, a recently discovered account), but none, including Newton (1865) or Slater (1975), gave a plumage description. There are only three extant specimens: two collected in 1845, labelled as from Col. M. Lloyd but probably collected by Thomas Corby (Cheke 1987: 51) are in Cambridge: one is white, the other brown (dark head & belly, white tail, possibly sub-adult; R.P. Prŷs-Jones pers. comm., M. de L. Brooke *in litt.*). The remaining specimen, collected by Slater in 1874 (Sharpe 1879), in The Natural History Museum collection in Tring, is another white morph adult (pers. obs.). The brown bird is exactly like one of the Bewsher specimens allegedly from Mauritius (see below). Brooke (1976, 1978) claimed that Layard had collected both Red-footed Boobies and Masked Boobies on Sandy Is., Rodrigues in 1856 - however, Layard was in fact collecting on Tromelin, then also known as 'Sandy Island', as Brooke himself (1981) later acknowledged. By 1916 Red-footed Boobies no longer bred on Rodrigues (Cheke 1987).

It is clear from Tafforet's account that his 'tra-tras' were brown morph Red-footed Boobies, clearly contrasted with the larger, rarer 'boeuf' (Abbott's Booby). Leguat's description is confusing, even suggesting Brown Boobies *S. leucogaster* (C. Feare *in litt.*). However a few sentences earlier he noted that 'fous', frigates, and tropic-birds (*Phaethon spp.*) nested up trees, whereas other seabirds nested on the sand - eliminating Brown Boobies. That three of the four known specimens are (or were) white is perhaps not surprising. Telfair's collectors were seeking a 'boeuf' (a white booby) so either accidentally obtained a white-morph Red-footed Booby, or the name had by then transferred to that form, Abbott's Booby having died out; his specimen is lost (see Wheeler 1997). Corby (a surveyor, not an ornithologist) probably saw two sorts, so collected one of each. Slater was keen, but no expert, and may have collected a white bird assuming it to be the fully adult version of the boobies he saw; in his own notes (Slater 1875) he used the name ' *S. dactylatra* ' (i.e. Masked Booby) although he clearly described them nesting in trees, and the specimen itself is labelled '*Anous stolidus* Booby' (pers. obs.)! Redressing the balance, I argue below that two brown-morph birds collected by Bewsher were obtained in Rodrigues and not Mauritius as labelled.

Rodrigues should therefore be added to the list of colonies with brown morphs predominating. It may be significant that, apart from Europa (22°S), this colony at 20°S was the most southerly in the western Indian Ocean.

Mauritius

Nelson (1978) did not mention Mauritius in his discussion of Red-footed Booby distribution, but Hartlaub (1877), Oustalet (1897), Meinertzhagen (1912), Rountree *et al.* (1952), Newton (1958), Watson *et al.* (1963) and Feare (1978), followed by Le Corre (1999), asserted that Red-footed Boobies used to breed on islets around Mauritius. There is no real evidence for this (Cheke 1987), but I will re-examine the claims here in more detail.

Although there were dozens of reports of the land fauna, only one early visitor to Mauritius reported boobies. In 1668 John Marshall saw a pair of probable Abbott's Boobies nesting up a tall tree, and in neighbouring seas saw 'boobos' "as big as a kite with a long bill and are of a reddish greene and some part white colour". These could, at a stretch, have been Red-footed Boobies (Cheke 1987). Bourne (1976) re-examined sub-fossil bones from Mauritius that Newton & Gadow (1893) had simply called 'gannet', and identified them as Abbott's Booby (undiscovered when the material was first studied).

In the 18th (La Caille 1763) and early 19th centuries (Desjardins, in Oustalet 1897) the French word 'fou' was used interchangeably with 'fouquet', to describe, not boobies, but petrels or shearwaters (Cheke 1982, 1987), causing confusion to later writers. Oustalet (1897) thought Desjardins was referring to boobies, despite the birds described "nesting in holes under rocks" (i.e. Wedge-tailed Shearwaters *Puffinus pacificus,* Cheke 1987). Following Milne-Edwards (1882), Oustalet also assumed Quoy & Gaimard's (1824) 'fous' seen off Mauritius in 1818 were Red-footed Boobies, but they had only reported birds 'similar' to European and South African gannets (i.e. white *Sula* with dark wing-tips). Their birds thus remain unidentified, though they were probably Masked Boobies, the Indian Ocean species closest in appearance to true gannets ('*Morus*' spp.). Meinertzhagen (1912) confused Ile Plate in the Seychelles with Flat Island off Mauritius and, citing Oustalet's (1897) remarks about Ile Plate, claimed that Red-footed Boobies nested on Flat island - this is despite having visited the islet twice himself and finding no seabirds (details in his diaries kept at Rhodes House, Oxford). Hartlaub (1877) noted a 'young' Red-footed Booby from Mauritius in Vienna, but the specimen in fact comes from Agalega (Cheke & Lawley 1983, and below). Guérin (1940-53) blithely added the other northern islets (Serpent, Round, Gunner's Quoin) to the alleged breeding sites of Red-footed Boobies and, as late as 1950, Rountree (1951) said they 'probably bred'. Guérin (1940-53) also asserted that there were four Red-footed Booby specimens in the Mauritius Institute museum; Rountree *et al.* (1952) quietly (and correctly, pers. obs.) reassigned them to Masked Boobies. Finally in 1952, Rountree *et al.* (1952), following his co-author Jean Vinson's visit to the islets (Vinson 1950), confirmed that they 'probably no longer nest on any of these islets today'. In fact no observer at any time ever actually saw or reported Red-footed Boobies nesting in or around Mauritius (Cheke 1987).

There are however three further museum specimens listed as having been collected in Mauritius.

The first, in Paris, presented by Delisse in 1837, is mentioned without further detail by Milne-Edwards (1882), Oustalet 1897 and Rountree *et al.* (1952). This specimen, accessioned on 6 June 1837, is labelled as from 'Ile de France', i.e. Mauritius (C. Jouanin *in litt.*). Theodore Delisse was one of the party that accompanied Bojer on his visit to Agalega in 1835 (Pourcelet 1994, and see below), and it seems most probable that that is where he collected the booby. A list of birds presented to the Paris museum in June 1837 by a M 'Delisle' consists largely of seabirds, but also includes two 'ibis vert', all allegedly from Mauritius (Jouanin *in litt.*). There have never been any ibises breeding in Mauritius (Cheke 1987), but there is a small colony of Glossy Ibis *Plegadis falcinellus* on Agalega (Cheke & Lawley 1983). The rest of the list includes (all in French, not Latin) frigate birds sp., boobies ('fou blanc'), noddy sp., another tern ('sterne dos noir = ? *Sterna fuscata*) and two migrant waders. All the seabirds in the list would, in 1835, have been easily obtained on Agalega, but not on Mauritius, where frigates no longer bred and terns and boobies (only Masked) could have been procured only on Serpent Island, on which there is no recorded landing before 1844 (Lloyd 1846, Vinson 1950). M 'Delisle' and M Delisse seem likely to have been one and the same person, and I suggest all the birds were collected in Agalega in 1835, with the specimens being imprecisely labelled as was not unusual at that time.

The other two specimens, in The Natural History Museum at Tring, are from bird and snail collector C.E. Bewsher, who had supplied them originally to the The Shelley Museum (George Shelley's collection). They are undated but must be 1868-79, when Bewsher was based in Mauritius (limiting dates of mentions in the *Transactions of the Royal Society of Arts & Sciences of Mauritius*). One is an adult brown morph, the other a sub-adult (white tail, but brown head & belly) also of the brown morph (pers. obs.). While Bewsher could somehow have collected a couple of vagrants around Mauritus, it is more likely that he procured the birds on his visit to Rodrigues (in 1874, Bouton 1875, Griffiths 1994). The ex-Shelley Museum accession includes (pers. obs.) a frigate bird *F. ariel*, one each of the two noddies and a Sooty Tern. All five species were readily obtainable in Rodrigues, while only the terns could have been collected, with difficulty, on Mauritius (Serpent Island; see above).

Finally Layard (1863) collected an unidentified 'gannet' egg, allegedly on Round Island. The egg no longer survives (Brooke 1978), but there are two Masked Booby skins from the same collecting trip (Brooke 1976), so the egg was presumably from a Masked Booby, and actually collected on Serpent Island.

On present evidence Mauritius should be deleted from the breeding distribution of the Red-footed Booby. There is only one confirmed record of a vagrant: Temple (1976) saw a single bird off the coast in June 1973. The Masked Boobies from Serpent Island can regularly be seen at sea around the northern islets of Mauritius (pers. obs. 1973-1999), and along the west coast (Temple 1976): 50 pairs were estimated in November 1992 (Safford 1993), while 200 birds were counted in September 1993 (Bell *et al.* 1993).

Reunion

Watson *et al.* (1963) unaccountably listed as occurring on Réunion both Masked ('possibly breeds') and Red-footed Boobies ('apparently does not breed ... grey-phase adults have been recorded'). Nelson (1978) and Feare (1978) were wisely cautious about this - in fact until 1976 no boobies of any species had been recorded, let alone bred, in Réunion (Gruchet 1976, Barré 1983). Gruchet (1976) correctly identified an immature sulid captured off the town of St. Paul, and photographed alive on 10 March 1976, as a Cape Gannet *Sula (Morus) (bassana) capensis*, though Barré (*loc. cit.*) and Probst (1997) thought it was a young Masked Booby. Despite his earlier reference, Barré *et al.* (1996) omitted this record from the Réunion handbook. Probst (*loc. cit.*) reported sight records of Masked Boobies off Le Port in 1995.

It would appear that Watson *et al.* (1963) accidentally transposed information from Mauritius, though they also gave the expected information under that island; their book contains no references.

Agalega

Scientists rarely visit Agalega, and detailed information on its original biota is minimal (Cheke & Lawley 1983, Guého & Staub 1983). Although several early visitors and colonists mentioned the (then) abundant 'fous' and their behaviour (*ibid.*), no plumage descriptions were given, but the birds were always stated to nest up trees. There are no records after 1848 (*ibid.*). The only sulid labelled as taken on the island is a Red-footed Booby left to the Vienna museum by the botanist Wenceslas Bojer, who visited the island in 1835 (Cheke & Lawley, *loc. cit.*). In 1844 Bojer presented a series of birds, including a 'fou', to the Société d'Histoire Naturelle de l'île Maurice (Bouton 1846), but this specimen has not survived (pers. obs. in the Mauritius Institute museum). However, I believe the 1837 Paris specimen also originated in Agalega, as the collector, Delisse, was with Bojer on the island in 1835 (Pourcelet 1994, see above).

Le Corre (1999) gave Cheke & Lawley (1983) as the source in his table where he claimed Agalega was inhabited by largely (80%+) white morph birds; in fact we did not mention colour morphs at all. When researching the biological history of the island (*ibid.*), I examined all the known literature and manuscripts pertaining to it; visitors never mentioned more than one kind of 'fou', nor their colour. The Vienna specimen was originally identified as an immature and labelled '*Sula alba*', suggesting that Bojer considered that adults were white; however the bird is in fact a brown morph adult (F. Steinheimer *in litt.*). The Delisse bird in Paris is an adult white morph (C. Jouanin *in litt.*). The evidence is too poor to assess the proportion of brown-morph birds, so the colony should be treated as 'unknown' in that respect.

Staub (Guého & Staub 1983) suggested Abbott's Booby might also have nested on Agalega, but this, while possible, is entirely speculative; without hard evidence Agalega should not be included in the former distribution of this species.

St. Brandon (=Cargados Carajos)

These atolls lie between Rodrigues and Tromelin, well south of Agalega, so might have been expected to have a high proportion of brown-morph birds in the Red-footed Booby colony. Newton (1956, 1958) is the only visitor who counted the proportions of brown and white morph before the birds on Ile Albatros disappeared - reporting one (1956) or 2 (1958) brown morph pairs amongst 25 active nests in January 1956. The nests were heavily predated by cats (Newton 1958), and the birds had ceased to breed by 1964 despite the eradication of cats (Staub & Guého 1968). No birds were seen at Albatros, not even at sea, during visits in 1965 (Staub & Guého *loc. cit.*), 1971 (Williams & Rowlands 1980) or 1975 (Newlands 1976). However a single pair was nesting on Grande Capitaine islet in 1968 (Staub 1976: '1958' in error, F. Staub *in litt.*), so the birds may yet recolonise, possibly from Tromelin, the nearest surviving colony. None were seen in 1996 (Swinnerton *et al.* 1996).

The colony of Masked Boobies on Ile du Nord used to number around 200 pairs (Newton 1958, Staub & Guého 1968, Staub 1976, Williams & Rowlands 1981), but in 1996 Swinnerton *et al.* (1996) only saw around 30 pairs. Predation on all local seabirds by Seychellois fishermen was causing concern in the mid-1970s (Newlands 1976), and was still a serious problem in 1996, with deep ocean fishing boats also implicated (Swinnerton *loc. cit.*).

Discussion

Historical data indicate that white-tailed brown morph birds were predominant in the now extinct Rodrigues colony of Red-footed Boobies, and that they were also present in the extinct Agalega population, but in an unknown proportion. There was no Red-footed Booby colony on or around Mauritius. These results do not alter Le Corre's conclusion that Indian Ocean populations are or were genetically isolated from each other; indeed they emphasize it, in that the St. Brandon colony, with a very low proportion of brown birds, is now seen to have been midway between two colonies with high percentages of brown morphs (Tromelin and Rodrigues). Le Corre also considered the darker morph might be a protection against kleptoparasitism by frigate-birds and skuas *Catharacta (skua) antarctica*. There were large colonies of frigates at Rodrigues, St. Brandon and Agalega (Staub 1973, Staub & Guého 1968, Cheke & Lawley 1983), but their colour morph ratios were very different. Skuas are regular but scarce winter visitors (Staub 1976, pers. obs.), but must always have been too rare, relative to the frigate populations, to have had much effect. Oceanographic factors, only touched on by Le Corre, may be of greater significance. According to Pocklington (1979), Europa and Rodrigues are in a zone where warm water in the austral summer is replaced by cooler southern water in the winter, whereas St. Brandon and Tromelin are in a zone of mixed water in winter; around Agalega the water is permanently warm and of 'intermediate salinity'.

Summary details of other booby populations on these islands update the reviews by Feare (1978) and Stoddart (1984). Abbott's Booby has been extinct in the Mascarenes for at least two centuries, while the Masked Booby hangs on at two colonies, that on Serpent Island (Mauritius) being small but stable, while the St. Brandon colony is declining and under threat from human predation.

Acknowledgements

Robert Prŷs-Jones kindly let me examine boobies and other seabirds in his care at The Natural History Museum (Tring, UK) and allowed me to consult the accessions register; he also commented on a draft of this paper. Mike Brooke and Frank Steinheimer gave me details of specimens in the Cambridge and Vienna museums respectively. France Staub made useful comments on a draft and gave me a very helpful lead; Christian Jouanin checked specimens in Paris, and located some key material in the museum's archives. Roger Safford helped with recent low-circulation reports from Mauritius. The editor persuaded me that my case was made without a long digression into 18th century usage of the word 'fou' in Mauritius.

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Bulletin of the British Ornithologists' Club
ISSN 0007-1595
Edited by Professor Chris Feare
Volume 121, Number 1, pages 1 - 80

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Registered Charity No. 279583

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The *Bulletin* is despatched from the printer on publication and is sent by Surface Saver Postal Services to all European destinations outside the UK and by Air Saver Postal Services to destinations outside Europe. Those whose subscriptions have not been received by the beginning of a month of publication will have their copies despatched by surface mail, after their current subscription has been paid.

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Bulletin of the British Ornithologists' Club

Volume 121 No.2
June 2001

MEETINGS are held at **Imperial College**, South Kensington, London, SW7, usually in the **Sherfield Building**. The nearest Tube station is at South Kensington; a map of the area will be sent to members, on request. (Limited car parking facilities can be reserved, on prior application to the Hon. Secretary). The cash bar is open from **6.15 pm**, and a buffet supper, of two courses followed by coffee, is served at **7.00 pm.** (A vegetarian menu can be arranged if ordered at the time of booking). Dinner charges are currently **£17.00.** Informal talks are given on completion, commencing at about 8.00 pm.

See also website: **http://www.boc-online.org**

FORTHCOMING MEETINGS

3 July

A.J. Pittman – "*The Blue Macaw*" – to take place in the Rector's residence 170 Queens Gate.

[**NOTE.** The talk by Frank Steinheimer on Cambodia has again been postponed – until 6 November].

Tony Pittman is a businessman with a keen interest in ornithology and conservation in general. He has kept parrots for many years and travelled to Brazil for the first time in 1990 to observe the Hyacinthine or Great Blue Macaw in the wild to try to gain insights into its behaviour to improve its notoriously poor breeding performance in captivity. Since then he has visited Brazil many times and actively supports the conservation project in the Brazilian Pantanal, which has just celebrated its tenth anniversary, as well as project work for the Spix's and Lear's Macaws. He writes regularly for avicultural journals in the U.K, Germany and elsewhere. He also produced the English language version of the eight-part *Lexikon der Papageien* authored by Thomas Arndt and published in Germany.

*Applications to the Hon. Secretary by **19 June** please.*

25 September

Inspector Phil Cannings – *The work of a Police Wildlife Liaison Officer.*

Phil Cannings is an Officer serving with Bedfordshire Police with a deep personal interest in natural history – he is **a** BTO 'A' ringer and a Member of the BOU. He chairs a government sub-committee looking at wildlife legislation and will talk about the work of Police Liaison Officers, and developments in the legal and forensic field, with some examples of the use of forensic science in recent wildlife related cases.

*Applications to the Hon. Secretary by **11 September** please.*

6 November

Frank D. Steinheimer *Undiscovered Cambodia – the endemics of the Cardamom Mountains.*

Frank was born in 1971 in Nuremberg, Germany, and studied zoology at Vienna University 1994–98, during which time he made field trips to foreign countries (Europe, Borneo, Thailand, Malaysia). He also gained experience working for the Bird Department of the Vienna Museum, also in Paris Museum. Since September 1998, Frank has been employed in the Bird Group of The Natural History Museum,Tring, working mainly with the wet anatomical and historically important collections (e.g. Darwin). In spring 2000 he took part in an expedition to west Cambodia.

*Applications to the Hon. Secretary by **23 October** please.*

Future meetings - advance notice

4 December - John Sparks - *Experiences of a Wildlife Film-maker.*

Overseas Members visiting Britain are especially welcome at these meetings, and the Hon. Secretary would be very pleased to hear from anyone who can offer to talk to the Club, giving as much advance notice as possible – please contact: Michael Casement, Dene Cottage, West Harting, Petersfield, Hants. GU31 5PA. UK. Tel/FAX:01730-825280 (or Email: mbcasement@aol.com).

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Bulletin of the
BRITISH ORNITHOLOGISTS' CLUB

Vol. 121 No. 2 Published 15 June 2001

CLUB NOTES

The 898th Meeting of the Club was held on Tuesday 16th January 2001 at 6.15 pm, attended by 29 Members and 10 guests.

Members present were: The Rev. T.W. GLADWIN (*Chairman*), Miss H. BAKER, Sir David BANNERMAN Bt., I.R. BISHOP, Mrs D.M. BRADLEY, D.R. CALDER, Cdr M.B. CASEMENT RN, Dr R.J. CHANDLER, Professor R.A. CHEKE, E.C. DICKINSON, F.M. GAUNTLETT, A. GIBBS, D. GRIFFIN, K. HERON, J.P. HUME, J.A. JOBLING, Dr C.F. MANN, D.J. MONTIER, Mrs A.M. MOORE, Mrs M.N. MULLER, Professor S.E. PIPER, Dr R.P. PRŶS-JONES(*Speaker*), N.J. REDMAN, P.G.W. SALAMAN, P.J. SELLAR, S.A.H. STATHAM, N.H.F. STONE, C.W.R. STOREY and M. WALTERS.

Guests attending were: Lady BANNERMAN, Ms G. BONHAM, Mrs J.B. CALDER, Mrs C.R. CASEMENT, Mrs M.H. GAUNTLETT, Mrs J.M. GLADWIN, S. LOWE, Mrs M. MONTIER, P.J. MOORE and Mrs W. SPERRING.

The programmed talk on Cambodia by Frank Steinheimer had been cancelled, due to the speaker's illness with malaria, but Dr R.P. Prŷs-Jones gave a presentation under the title "*The bird collection of Richard Meinertzhagen: fraud, its detection and some happy endings*" The following is a brief synopsis:

The bird collection of the "soldier, scientist and spy" Richard Meinertzhagen, largely held by The Natural History Museum, comprises over 20,000 specimens and was long regarded as of exceptional importance. However, over the past decade it has become increasingly clear that much of it was fraudulently acquired and is fraudulently labelled.

Robert traced the slow and difficult path from initial suspicion to a reasonable level of proof, and described the techniques by which the latter has been achieved. He showed how in some cases this detailed research is enabling original data to be restored to specimens with a high degree of confidence. The rediscovery of the Forest Owlet *Heteroglaux blewitti*, a species presumed extinct for nearly a century, has been perhaps the most surprising spin-off of these studies.

The 899th meeting of the Club on Tuesday 6th March at 6.15 pm, was attended by 25 Members and 9 guests. Members present were: The Rev. T.W. GLADWIN (*Chairman*), Miss H. BAKER, Sir David BANNERMAN Bt., Captain Sir Thomas BARLOW Bt RN, P.J. BELMAN, Dr T.M. BROOKS, D.R. CALDER, Cdr M.B. CASEMENT RN, Dr R.J. CHANDLER, Dr N.J. COLLAR, F.M. GAUNTLETT, A. GIBBS, D. GRIFFIN, K. HERON, J.A. JOBLING,S. LOWE, Dr C.F. MANN, D.J. MONTIER, R.G. MORGAN, Mrs M.N. MULLER, Dr R.P. PRŶS-JONES, N.J. REDMAN, D.J. SALT, R.E. SCOTT and P.J. SELLAR.

Guests attending were: Mrs J.B. CALDER, Mrs C.R. CASEMENT, Mrs M.H. GAUNTLETT, Mrs J.M. GLADWIN, Mrs J.A. JONES, Mrs M. MONTIER, A. NAVARRO, Ms E. SCHOTSMANS and J.B. THOMSEN.

The dinner was followed by a stimulating talk by Tom Brooks* (see below) entitled "*Deforestation and bird extinctions in the Philippines*". The following is a brief synopsis of his presentation:

The Philippines is roughly equal in size and human population to the UK, and holds 182 endemic bird species, following Sibley & Monroe's (1990, 1993) taxonomy. All these species are dependent on forest, which historically covered the entire country. Now, no more than 24% of the country remains forested, and yet not a single endemic bird species has become extinct. Based on the species-area relationship, whereby the number of species in an area is directly proportional to the size of that area raised to the power 0.25, we would expect no less than 55 extinctions.

Three hypotheses might explain this discrepancy. First, species may be highly tolerant of habitat loss. Second, many extinctions may have occurred historically, before they were described to science. Third, there may be a time-lag between habitat loss and species loss and, because the deforestation of the Philippines is recent, extinctions may simply not have occurred yet. We can test these hypotheses using the data compiled by BirdLife International in "*Threatened Birds of the Philippines*" (Collar, Mallari & Tabaranza 1999), documenting those species which have a "high probability of extinction in the medium-term future".

There are 51/182 threatened Philippine endemic birds, a proportion not significantly different from that predicted by deforestation. We can therefore accept our third hypothesis, that there is a time-lag between habitat loss and extinction. This gives hope that there is still time to implement conservation in the country, refuting recent suggestions that the Philippines should be written off the conservation agenda. New developments in conservation planning (the emergence of a consensus as to priorities within the country), finance (the development of new funding mechanisms like the Critical Ecosystems Partnership Fund) and politics (January's changes in the Philippine government) all support the contention that an order of magnitude increase in conservation action in the country is urgent, but still possible.

The evening concluded with a lively discussion period.

* Dr T.M. Brooks, The Center for Applied Biodiversity Science, Conservation International, 1919 M Street NW, Suite 600, Washington DC 20036, USA.

The 900th meeting of the Club was celebrated at a special dinner held on Tuesday 6th March 2001, at 6.15 pm, in the Rector's Residence, 170 Queensgate, Imperial College. It was attended by 28 Members and 21 guests.

Members present were: The Rev. T.W. GLADWIN (*Chairman*), Miss H. BAKER, Sir David BANNERMAN Bt., Captain Sir Thomas BARLOW Bt RN, P.J. BELMAN, I.R. BISHOP, Mrs D.M. BRADLEY, Cdr M.B. CASEMENT RN, Dr R.J. CHANDLER, Dr C.T. FISHER, D.J. FISHER, F.M. GAUNTLETT, A. GIBBS, D. GRIFFIN, J.A. JOBLING, Dr C.F. MANN, D.J. MONTIER, Mrs A.M. MOORE, P.J. OLIVER, A.J. PITTMAN, Dr R.P. PRŶS-JONES, N.J. REDMAN, R.E. SCOTT, P.J. SELLAR, S.A.H. STATHAM, N.H.F. STONE, R.P. TIPPER and Dr C.G. VIOLANI.

Guests attending were: Lady BANNERMAN, M. BRADLEY, Ms G.BONHAM, M.D. DAWSON, E. FULLER, Mrs M.H. GAUNTLETT, Mrs B. GIBBS, Mrs J.M. GLADWIN, Mrs M. MONTIER, R.M. PECK (*Speaker*), Mrs S. PECK, Mr and Mrs S. MARTIN, P.J. MOORE, R. PRYTHERCH, R. RIDDINGTON, Mrs S. STONE, Mr and Mrs I. TEGNER and Mr and Mrs L. de ROTHSCHILD.

The Chairman concluded dinner with a toast to celebrate the 900th meeting, and the future health of the Club.

The meeting was then addressed by Robert McCracken Peck, Fellow of the Academy of Natural Sciences of Philadelphia whose topic was *John James Audubon in the American West: The Last Expedition*. Mr. Peck, who serves as curator of art collections at the Academy, has recently assisted in organising a travelling exhibition on Audubon's American travels and has contributed an essay to a book on the subject which was published by Harry Abrams in 2000. [*John James Audubon in the West: The Last Expedition, Mammals of North America*, Sarah Boehme, Editor]. The following is a synopsis of his talk:-

J. J. Audubon (1785-1851) is best remembered for *The Birds of America* (1826-1838), his massive, multi-volume book, which featured 435 life-sized aquatint engravings representing some 1,065 individual birds and set a new standard for artistic excellence in scientific illustration. Less well known today is Audubon's second great book, *The Viviparous Quadrupeds of North America* which consumed the last twelve years of his life and gave rise to his longest and most ambitious expedition. Using spectacular slides of paintings and artefacts relating to the book and the expedition, Mr. Peck discussed Audubon's contributions to science and put his accomplishments into a fascinating cultural and historical context. He also discussed many of the unsung or forgotten heroes in the creation of Audubon's two great publications.

When Audubon decided to shift his professional attention to mammals after a lifetime's devotion to the study of birds, he was fortunate to have the assistance of The Reverend John Bachman, a Lutheran minister from Charleston, South Carolina (whose daughters eventually married Audubon's two sons). Bachman knew the zoological literature of the day better than anyone else in America. He agreed to research and write the scientific text for the book, while Audubon set about painting whatever live animals and skinned, pickled, or stuffed specimens he could obtain. Audubon, who prided himself on his skills as an artist and woodsman and disliked the tedium of library research and studio painting, longed for the life of a wandering naturalist he had so enjoyed in his youth.

Using the dearth of reliable, first-hand information about America's western mammal species as the excuse to make a long desired trip to the Rocky Mountains, he embarked on what he called his "grand and last journey ... as a naturalist" in the spring of 1843. With a party of four, he travelled up the Missouri River by steamboat to Fort Union on the Yellowstone River (located on the border between the present day states of Montana and North Dakota). Although his hopes to reach the Rockies were thwarted by hostile Indian activity, Audubon and his party spent an eventful eight weeks hunting, observing, and painting wildlife in the Fort Union area.

Audubon finally returned to his home in New York eight months after his departure, bringing with him several new bird species (Bell's Vireo, Sprague's Pipit, Harris's Sparrow and the Western Meadowlark), as well as what he immodestly called "the best accounts of the habits of the Buffalo, Beaver, Antelope, Big Horns &c. that were ever written, and a great deal of information of diverse nature."

A decline in the artist's physical and mental health after 1846 prevented him from seeing his ambitious book to completion. Fortunately his sons, John Woodhouse and Victor Gifford Audubon, were able to continue the effort themselves, eventually producing almost half of the 150 lithographic plates in the three volume "imperial folio" edition of the Quadrupeds. John Bachman's scientific rigor and systematic approach to the text, while sometimes exasperating to the Audubons, transformed a randomly organised aesthetic exercise and collection of anecdotal species accounts into a meaningful contribution to the collective knowledge of American natural history.

This scholarly and fascinating talk was enthusiastically appreciated by all present, and the evening concluded with lively questions and discussion.

TRUSTEES ANNUAL REPORT FOR 2000

Registered Charity No. 279583

List of Trustees - Committee

Reverend T.W. GLADWIN Chairman (1997); Dr. R.P. PRŶS-JONES Vice-Chairman (1999); Cdr. M.B. CASEMENT, O.B.E., R.N. Hon. Secretary (1996); D.J. MONTIER Hon. Treasurer (1997); D. GRIFFIN, M.A. (1997); N.J. REDMAN (1997); R.E.SCOTT (1998); J. A. JOBLING (1999); Dr. C. F. MANN (1999).

Objects of the Charity. The promotion of scientific discussion between Members of the British Ornithologists' Union and others interested in ornithology, and to facilitate the dissemination of scientific information concerned with ornithology.

Activities and Review of the Year

Meetings. Eight evening meetings were held in 2000 in the Sherfield Building at Imperial College, London. A total of 289 (210 members and 79 guests) attended these meetings, which represented an average attendance of 36. The programme of speakers during the year again covered a wide variety of ornithological subjects in both Britain and overseas. As for the past three years, the May meeting following the AGM was in the form of a social evening, during which informal short talks and brief discussions were contributed by seven participants, on a range of topical subjects.

Committee. The Committee met seven times during the year, and the attendance was 94%. The chief topics for discussions were the updating of the Rules of the Club and proposals for widening the membership. After extensive debate and consultation with legal and other advisers, changes to the Rules of the Club, which included extending membership to non-Members of the Union, were unanimously approved, at a Special General Meeting held on 31st October 2000. The changes were implemented, with effect from 1st January 2001. Other matters discussed concerned the progress of Club publications, the business of the Publications Sub-committee (see below), and continuing ideas for increasing the circulation of the Bulletin.

Following further cost increases by Imperial College, dinner charges were increased to £17, with effect from 3rd October 2000. The administration and re-organisation of Membership records and subscription payments was progressed by the Hon. Secretary, with the increasing use of E-mail, and ideas and plans for establishing a BOC website were advanced.

The Committee continues to be most grateful to the Trustees of the Herbert Stevens Trust Fund (Mr Nigel Crocker, Mr Richard Price and Mr Peter Oliver) for their time and expertise advising on the performance of the Fund.

Publications Sub-committee. Probably the most significant event of the past year was the agreement in principle reached by the BOU and BOC, as a result of our Chairman's initiative, that the current BOU Checklist series would become a joint publication venture between the two organisations. We look forward to involvement in this most useful series, which falls very much within the BOC's sphere of interest.

Both the "Bird Atlas of Uganda" and the "Proceedings of the BOU/BOC/NHM/BirdLife Conference", intended to be finalised in 2000, have unfortunately slipped behind schedule but should be published in 2001. No definite commitments for future Occasional Publications have been entered into, but further possibilities are under review which will be pursued once one of the two above volumes has gone to press.

The Occasional Publication series was designed for important ornithological works which were nevertheless likely to sell in numbers too small for commercial publication at a reasonable cost. Total sales (and sales in 2000) of volumes published so far have been:

Occ. Pub. No 1. Extinct and Endangered Birds (1994)	205	(6)
Occ. Pub. No 2. Manuscripts and Drawings at Tring (1997)	149	(5)
Occ. Pub. No 3. Avian Eggshells: an Atlas of S.E.Ms (1997)	66	(5)
Occ. Pub. No 4. Type Specimens of Bird Skins in the University Museum at Cambridge (1999)	105	(53)

Membership. There were 569 paid-up Members at 31st December 2000 – 302 with addresses in the U.K, and 267 overseas.

The Club welcomed 39 new Members, including 21 previous non-Member Subscribers, taking advantage of the Rule change to join the Club. But it is with great regret that the Committee reports the deaths in the past year of six Club Members: M.A. Adcock (1986-2000), Dr D.J. Aidley (1984-2000), P. Gladstone (1998-2000), D.A. Holmes (1973-2000), P. Hogg, (1957-2000); (Committee 1962-66, 1972-74, Vice-Chairman 1974-77, Chairman 1977-80), and J. Westoll (1986-99). There were eight resignations, and eight were removed under Rule (7), resulting in a net increase in membership of 17 during the year.

The publication of the Members' Address List, annually with the Index, was discontinued in 1997, in order to reduce costs. The Hon. Secretary continues to prepare a list annually, and duplicated copies of the Membership 2001 are available, free of charge, for any Member requesting a copy, though a stamped and addressed envelope (A5), or a contribution towards the cost of postage, will be gratefully received.

The Bulletin. Volume 120 comprised 280 pages and included 36 scientific papers. These included the confirmation and description of a new species of owl from Madagascar and descriptions of new subspecies of East-coast Akalat from Tanzania and Black and Yellow Silky Flycatcher from Costa Rica. The interval between receipt of papers and publication of those accepted averaged 15 months (range 4 to 28 months); longer delays were caused by prolonged review processes and absence of authors when manuscripts were returned for revision.

As mentioned in the 1999 report, we changed our printer and method of publication at the beginning of the year. The transfer to new processes, including electronic preparation of edited manuscripts and transfer of copy to the page-maker, Alcedo Publishing of Colorado Springs, and printing by Crowes of Norwich, went smoothly. The anticipated cost savings have been achieved, and Volume 120 contained a better quality of paper and more colour illustrations.

During 2000, 61 papers were received of which 37 have been accepted. The editor is again grateful to reviewers for their critical appraisal of manuscripts and advice on acceptability; and thanks Mary Muller for preparing the index (a process simplified by our transfer to the new printer), and Michael Casement for compiling the Club Notes.

Bulletin Sales. Sales to Non-member Subscribers totalled 132, with 21 in the UK and 111 overseas (27 countries). Of the latter, 43 were to the United States of America, 9 to Australia and 7 to Germany. To meet legal requirements, and by way of exchange, 8 additional free copies were despatched to UK addressees and 9 overseas. Non-Member subscribers are now re-categorised as Institutional Subscribers.

Finance. Total revenue for 2000 was £35,759, an increase of approximately £2,300 over the previous year. Sales of Occ. Pub. 4, the Types Catalogue by Con Benson, account for the whole of this increase. Fluctuations under other revenue headings were less significant. Subscription income improved slightly by about £260 and investment income was up by £700, these two items offsetting reductions under other headings.

Expenditure was considerably lower than in 1999 at £21,190, a decrease of almost £9,000. There were no new publications during 2000, the cost of the Benson publication having been charged in last year's accounts. A change of printers for the Bulletin resulted in a net reduction in costs of £1,500 under that heading, yet at the same time, we hope that members felt the appearance and quality has been enhanced.

At the end of what proved to be a quiet year financially, the net result for the Club was a surplus of income over expenditure of £14,569, from which £5,000 has been set aside in an Unrestricted Designated Fund towards the Club's proposed joint venture with the BOU for future publications in the Union's Checklist series. Despite another volatile period on the stockmarkets, investments increased in value by £8,851 over the year, representing a rise of almost 3.8%. These two figures combined took the overall value of the Club's net assets at 31st December 2000 to almost £323,000.

Trustees' responsibilities

Under the Charities Act 1993, the trustees are required to prepare a statement of accounts for each financial year which give a true and fair view of the state of affairs of the charity at the end of the financial year and of the incoming resources and application of resources in the year. In preparing the statement the trustees are required to:

- select suitable accounting policies and then apply them consistently;
- make judgements and estimates that are reasonable and prudent;
- state whether applicable accounting standards and statements of recommended practice have been followed, subject to any material departures disclosed and explained in the statement of accounts;
- prepare the financial accounts on the going concern basis unless it is inappropriate to presume that the charity will continue its operations.

The trustees are responsible for keeping proper accounting records which disclose with reasonable accuracy at any time the financial position of the charity and to enable them to ensure that any statement of account prepared by them complies with the regulations under section 41(1) of the Charities Act 1993. They are also responsible for safeguarding the assets of the trust and hence for taking reasonable steps for the prevention and detection of fraud and other irregularities.

BALANCE SHEET — 31st December 2000

		2000		*1999*	
	Notes	**£**	**£**	*£*	*£*
TANGIBLE FIXED ASSETS	2		**10**		*20*
INVESTMENTS					
At market value	3		**240,075**		*231,224*
CURRENT ASSETS					
Stock of publications		**100**		*100*	
Cash at bank and in hand		**4,407**		*3,544*	
Cash on deposit		**86,343**		*79,688*	
Prepayments		**375**		*480*	
Other debtors		**103**		*100*	
		91,328		*83,912*	
CURRENT LIABILITIES					
Subscriptions in advance		**(4,161)**		*(4,443)*	
Creditors falling due within one year		**(4,323)**		*(11,204)*	
			82,844		*68,265*
TOTAL ASSETS			**£ 322,929**		*£ 299,509*

Balance sheet *continued*

	Notes	2000 £	2000 £	*1999* *£*	*1999* *£*
FUNDS					
UNRESTRICTED					
Designated	4		**5,000**		-
Other	5		**309,623**		*291,683*
			314,623		*291,683*
RESTRICTED	6		**8,306**		*7,826*
			£ 322,929		*£ 299,509*

Approved and signed on behalf of the Trustees
T W Gladwin
Chairman
Date: 3rd April 2001

STATEMENT OF FINANCIAL ACTIVITIES — 31st December 2000

	2000 **Unrestricted** **£**	**2000** **Restricted** **£**	**TOTAL** **£**	*1999* *TOTAL* *£*
INCOMING RESOURCES				
SUBSCRIPTIONS				
Members	**6,711**	-	**6,711**	*6,704*
Non-member subscribers	**3,778**	-	**3,778**	*3,530*
Income tax recoverable under Deeds of Covenant	**409**	-	**409**	*401*
	10,898	-	**10,898**	*10,635*
DONATIONS	**78**	-	**78**	*628*
SPONSORSHIP of bulletin colour illustrations	-	-	-	*649*
INVESTMENT INCOME				
Herbert Stevens Trust Fund	**10,633**	-	**10,633**	*10,712*
Barrington Trust Fund	**40**	-	**40**	*40*
Interest received	**4,267**	**480**	**4,747**	*3,962*
	14,940	**480**	**15,420**	*14,714*
SALES OF PUBLICATIONS				
Bulletin	**929**	-	**929**	*796*
Other publications	**3,680**	-	**3,680**	*1,531*
	4,609	-	**4,609**	*2,327*
MEETINGS	**4,707**	-	**4,707**	*4,455*
OTHER INCOME	**47**	-	**47**	*53*
TOTAL INCOME	**35,279**	**480**	**35,759**	*33,461*

Statement of financial activities *continued*

		2000			1999
	Notes	Unrestricted £	Restricted £	TOTAL £	*TOTAL £*
RESOURCES EXPENDED					
DIRECT CHARITABLE EXPENDITURE					
MEETINGS					
Room and equipment hire, speakers' expenses, etc		1,239	-	1,239	*1,324*
SPONSORSHIP for Avian Taxonomy Conference "Why Museums Matter"		-	-	-	*1,251*
BOC BULLETIN					
Production, printing and distribution		12,542	-	12,542	*14,043*
OTHER PUBLICATIONS					
Production and publication		-	-	-	*6,054*
Future publications		367	-	367	*1,000*
Publicity, postage and packing		293	-	293	*131*
OTHER EXPENDITURE					
MEETINGS					
Restaurant		4,693	-	4,693	*4,519*
ADMINISTRATION	7	2,056	-	2,056	*1,808*
TOTAL EXPENDITURE		21,190	-	21,190	*30,130*
EXCESS OF INCOME OVER EXPENDITURE		14,089	480	14,569	*3,331*
Appreciation in value of investments		8,851	-	8,851	*14,736*
		22,940	480	23,420	*18,067*
TOTAL FUNDS brought forward at 1st January 2000		291,683	7,826	299,509	*281,442*
TOTAL FUNDS at 31st December 2000		£ 314,623	£ 8,306	£ 322,929	*£ 299,509*

NOTES TO THE ACCOUNTS — 31st December 2000

1. ACCOUNTING POLICIES

a) Basis of Accounts
The Financial Statements are prepared under the historical cost convention as modified by the inclusion of investments in the Herbert Stevens and Barrington Trust Funds at market values.

b) Depreciation
Depreciation is calculated to write off fixed assets over their expected useful lives at an annual rate of 10% on cost.

c) Investments and Cash Deposits
The Herbert Stevens and Barrington Trust funds are invested in quoted UK charity unit trusts and shown in the Balance Sheet at year-end market values. Income from these funds and from cash deposits is included in the Statement of Financial Activities on a receipts basis.

d) Publications

The cost of publications is written off in the Statement of Financial Activities as incurred except for a nominal stock value of £100 carried in the Balance Sheet.

2. TANGIBLE FIXED ASSETS

	Projection Equipment £
Cost at 1st January and 31st December 2000	100
Accumulated depreciation at 1st January 2000	80
Charge for the year	10
At 31st December 2000	90
Net book value at:	
At 31st December 2000	**£ 10**
At 31st December 1999	*£ 20*

3. INVESTMENTS - at market value

	2000 **£**	*1999* *£*
Herbert Stevens Trust Fund	**238,832**	*229,917*
Barrington Trust Fund	**1,243**	*1,307*
	£ 240,075	*£ 231,224*

4. UNRESTRICTED DESIGNATED FUND

for future publications

	2000 £
Balance at 1st January 200	-
Designated during the year	5,000
Balance at 31st December 2000	5,000

5. OTHER UNRESTRICTED FUNDS

	GENERAL FUND £	HERBERT STEVENS TRUST FUND £	BARRINGTON TRUST FUND £	TOTAL £
Balances at 1st January 2000	60,459	229,917	1,307	291,683
Appreciation / (reduction) in value of investments during year	-	8,915	(64)	8,851
Surplus of income over expenditure	14,089	-	-	14,089
Transfer to Unrestricted Designated Fund	(5,000)	-	-	(5,000)
Balances at 31st December 2000	**£ 69,548**	**£ 238,832**	**£ 1,243**	**£ 309,623**

6. RESTRICTED FUNDS

	PUBLICATIONS FUND £	BIRD ATLAS OF UGANDA FUND £	TOTAL £
Balances at 1st January 2000	4,703	3,123	7,826
Interest - gross	295	185	480
Balances at 31st December 2000	**£ 4,998**	**£ 3,308**	**£ 8,306**

7. ADMINISTRATION EXPENSES include:

	2000	*1999*
	£	*£*
Audit and Independent examination fees	**550**	550
Depreciation of tangible fixed assets	**10**	*10*

8. REIMBURSEMENT OF EXPENSES

Committee members are reimbursed for expenses incurred by them on behalf of the Club. The amount reimbursed during the year was **£879** (*1999 £1870).*

INDEPENDENT EXAMINERS REPORT TO THE TRUSTEES OF THE BRITISH ORNITHOLOGISTS' CLUB

This is a report in respect of an examination carried out on the accounts set out on pages 86 to 90 under Section 43 of the Charities Act 1993 and in accordance with directions given by the Charity Commissioners under Subsection 7(b) of that Section.

Respective responsibilities of trustees and independent examiners
As described on page 86 the Trustees are responsible for the preparation of the accounts and they consider that Charities Act 1993 Section 43(2) (audit requirement) does not apply. It is our responsibility to carry out procedures designed to enable us to report our opinion.

Basis of Opinion
This report is in respect of an examination carried out under section 43 of the Charities Act 1993 and in accordance with the directions given by the Charity Commissioners under section 43(7)(b). An examination includes a review of the accounting records kept by the charity trustees and a comparison of the accounts presented with those records. It also includes a review of the accounts and making such enquiries as are necessary for the purposes of this report. The procedures undertaken do not constitute an audit.

Opinion
No matter has come to our attention in connection with our examination which gives us reasonable cause not to believe that in any material respect:

(i) accounting records have been kept in accordance with Section 41 of the Charities Act 1993; or

(ii) the accounts accord with those records; or

(iii) the statement of accounts complies with the accounting requirements of the Charities Act 1993.

No matter has come to our attention in connection with our examination to which, in our opinion, attention should be drawn to enable a proper understanding of these accounts.

PORRITT RAINEY & CO.
Chartered Accountants

An unknown scops owl, *Otus* sp., from Sumba, Indonesia

by Ben F. King & Dennis Yong

Received 2 November 1999

On 4 September 1987, while searching in central Sumba for the Sumba Boobook *Ninox rudolfi*, we heard an unfamiliar owl song from three individuals. Although no scops owl is known from Sumba (White & Bruce, 1986), when we tape-recorded the call and eventually got good views of one of the owls at *c.* 20m distance, we realized the calling bird was a scops owl, *Otus* sp., rather than a boobook, *Ninox* sp. B.F.K. returned to the site on 7 September 1987 and watched one of the scops owls for *c.* 30 min, using a 6-cell flashlight and 10x binoculars at a distance of *c.* 5 m, and occasionally down to 3 m. At this close range, the bird was seen to be undoubtedly a scops owl, at the smaller end of *Otus* size range. The plumage was mainly rufous, with distinctive fine wavy barring or vermiculations on the underparts, on which neither spots nor streaks were visible. Ear tufts were not noted. On that night four scops owls were heard.

At that time, neither of us had ever seen *Ninox rudolfi* and its call was undescribed. However, in 1992 Gerry Richards gave B.F.K. a tape recording of this species and, on 26 August 1993, playback of that tape at the scops owl site brought a Sumba Boobook in close and enabled B.F.K. to see it well and make an improved tape recording. It was similar in size to *Ninox novaeseelandiae* and much larger than the scops owl mentioned above. Its entire underparts were white with narrow dark barring, the barring broader than on the scops owl and lacking any wavy effect.

Subsequently, B.F.K. has taken several tour groups to the site where all have seen the scops owl and most have seen the boobook. The dates of the *Otus* sightings, with the number seen or heard, are: 25 August 1989 (4 birds), 15 August 1991 (4), 26 August 1993 (6), 29 August 1995 (2), 20 August 1997 (7). At another site a few kilometers to the south, two were heard on 22 August 1997.

Further *Ninox rudolfi* observations at the site by B.F.K. and his tour groups were: 29 August 1995 (2), and 20 August 1997 (5). At the second site where the scops owl was seen a pair of Sumba Boobooks was seen by flashlight copulating on 22 August 1997, *c.* 1 h after sunset.

The scops owl is readily distinguished from *Ninox rudolfi* by its song, its much smaller size, and the very fine wavy barring on its underparts (rather than broader regular barring). The barring of the scops owl is visible only at very close range, while that of *Ninox rudolfi* can be seen at much greater distances.

The song of the *Otus* (fig. 1) is a single, low, whistled *who, hop* or *hoop* repeated at intervals of 3-4 s. The pitch of the song of one sex is apparently somewhat lower than the other (fig. 1). What seem to be pairs regularly call antiphonally. This species often calls spontaneously at night, just after dusk, in August and September and is normally responsive to tape playback. It is fairly common and is found inside trees and bushes, usually at lower heights than *Ninox rudolfi*. The habitat at the site is broad-leaved evergreen forest, with some old large trees and second growth in places where trees have been removed. The scops owl cannot usually be observed from the forest edge.

The song of *Ninox rudolfi* (fig. 1) is a low, sharp and hard but musical *took* or *chuck*, repeated 3 times per second, often for long periods. Spontaneous calling in this species in August and September is rare and tape playback is normally required to locate them. Usually, *N. rudolfi* perches higher in the trees than the scops owl and more often in exposed places, and can normally be seen from the forest edge. The species is fairly common and is found in the same areas as the scops owl.

The discovery and subsequent observations were made at 600m elevation in the forest south of Km 49 (from Waingapu) on the Lewa road west of Waingapu on the island of Sumba in Indonesia, at 9°44'S, 119°56'E. The bulk of Sumba is open grassland, the forest patches rather like oases. The large patch of forest at the discovery site is rather isolated. The largest areas of forest on Sumba are on the south side of the island and sightings by other observers of both owls have been made there.

Because the song of the Sumba *Otus* is unlike that of any other known species in Indonesia, either it is an undescribed species, or it is *Otus alfredi*, currently known only from the mountains of nearby Flores (Widodo *et al.* 1999). We are inclined to favour the idea that it is *Otus alfredi*, which is a rufous species, lacking dark spots or streaks on the underparts and with fine wavy barring on the breast and belly (although the barring seems somewhat less uniform than on the birds seen by B.F.K. on Sumba). The song of *Otus alfredi* remains unknown and the species is known from only four specimens, one netted bird, and one sighting. At the type locality of *Otus alfredi*, Gunong Repok, in September 1987, B.F.K. spent most of a night listening at various elevations up to the summit and heard only *Otus silvicola* (at 1,100 m). Furthermore, repeated playback of the Sumba *Otus* call in the mountains around Ruteng, where

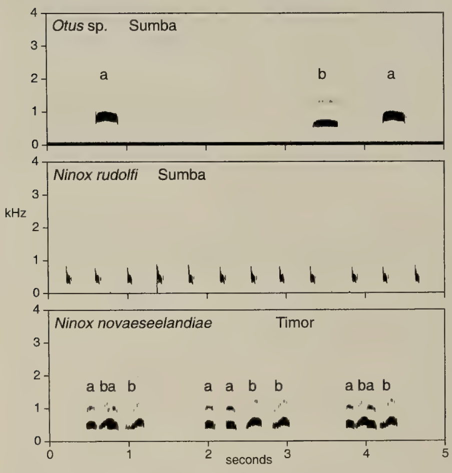

Figure 1: Sonagram of the songs of *Otus* sp. and *Ninox rudolfi* from Sumba, Indonesia, and *N. novaeseelandiae* from Timor. The *Otus* sp. recording is of 2 birds, presumably a pair, the first and third (a) songs being from one bird (at which the microphone was directed) and the middle song (b—this bird was off to the side) was of the other bird (probably of the opposite sex). The *Ninox rudolfi* cut is of a single bird while that of *N. novaeseelandiae* cut is of two birds, presumably a pair; these recordings were in response to playback.

Otus alfredi was recently rediscovered, failed to elicit a response. This does not however preclude the possibility that the Sumba bird is *O. alfredi*.

Otus alfredi was initially collected at *c.* 1,050 m and the mist-netted bird was at 1,400m, while the Sumba *Otus* was found at 600 m. This disparity in elevation might lead one to conclude that the Sumba *Otus* could not be *O. alfredi*. However, it should be noted that the Russet-backed Jungle Flycatcher *Rhinomyias oscillans* has a similar altitudinal range, i.e. 600 m on Sumba, but 1,200-1,800 m (B.F.K. pers. obs.) on Flores.

Flores is somewhat larger than and 45 km due north of Sumba. The actual sites of the Sumba *Otus* and *Otus alfredi* are 130-135 km apart. The highest elevation on Sumba is *c.* 1,200 m while that of Flores is *c.* 2,330 m. Flores originally had a higher percentage of its area as forest (broad-leaved evergreen).

Others have seen and heard the Sumba *Otus* at the site of our discovery and elsewhere in Sumba. Coates & Bishop (1997) listed an *Otus* sp. for Sumba, while erroneously noting that it was first discovered in 1991. Linsley *et al*. (1999) report an unidentified owl on Sumba and mention 8 observers who have reported it, some of whom called it an *Otus*, while others called it *Ninox rudolfi*.

While noting that *Ninox rudolfi* has been considered conspecific with *Ninox novaeseelandiae*, White & Bruce (1986) retained it as a full species. Its song bolsters that position, as it is quite different from that of *N. novaeseelandiae* from Timor (fig. 1). The song of *N. novaseelandiae* on Timor can be described as a loud, hollow, mellow *too too*. Furthermore, the various forms of *N. novaseelandiae* have the breast and belly broadly streaked as opposed to the barring of *N. rudolfi*.

We publish this note because of the confusion as to the scops owl's identity, and to alert the ornithological community so that eventually a specimen might be obtained in order that the taxon can be described.

Acknowledgements

We thank Jeff Groth for the preparation of the sonagrams, and John Fitzpatrick and Greg Budney of the Library of Natural Sounds at the Laboratory of Ornithology of Cornell University for the use of tape recording equipment. Referee Pamela C. Rasmussen contributed useful comments.

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Note on the occurrence of Finsch's Bulbul on Sumatra

by S. (Bas) van Balen

Received 29 March 2000

Finsch's Bulbul *Criniger (Alophoixus) finschii* is a rare, little known forest bulbul restricted to the southern-most tip of Thailand, Peninsular Malaysia, Borneo and Sumatra (King *et al.* 1975). Its status on the latter island is rather enigmatic, as according to the literature it is only known from a single specimen collected in 1919 in North Sumatra (van Marle & Voous 1988; Holmes 1996).

The recent observation of a number of birds in southern Sumatra, and the existence of a number of entirely overlooked specimens (see postscript) induced me to write this paper on the species. I will give a summary of its general distribution, and a more detailed account of its occurrence on Sumatra. Some information is given on its little-known biology.

Distribution

Thailand

Uncommon resident in the extreme southern province in evergreen forest, from the foothills to 600 m (Lekagul & Round 1991).

Peninsular Malaysia

Rare (King *et al.* 1975), but recorded throughout the peninsula from Yala and Kelantan States south to Johore (Medway & Wells 1976).

Borneo

Sparsely distributed resident in primary forest, with a preference for submontane localities (Smythies 1981). Smythies (1957) reported 35 specimens collected and observations at ten localities throughout Borneo, but there are other records. More recent sight records come from Sungei Benutan in Brunei (Mann 1987); Tawau, Quoin Hill, Kalabakan and Ulu Segama forest reserve in Sabah (Gore 1968, Lambert 1992); Similajau National Park in Sarawak (Duckworth & Kelsch 1988); Danau Sentarum (van Balen 1996) and Gunung Palung National Park in West Kalimantan (Laman *et al.* 1996); Barito Ulu Research Area in Central Kalimantan (Holmes & Burton 1987; Wilkinson *et al.* 1991); Kayan Mentarang National Park, at 350-400 m (van Balen & Nurwatha 1997), along the head waters of the Tubu river at c. 600 m and along the Malinau river at c. 75-125 m (pers. obs. 1997-1998) in East Kalimantan. In all these localities the bulbul was found to be rare, or scarce and local.

Sumatra

The first published report of Finsch's Bulbul on Sumatra was made by A.F.C.A. van Heijst, who collected a specimen at Sungei Tasik (Langkat, North Sumatra) on 22 October 1919 (Robinson & Kloss 1920; Snouckaert van Schauburg 1920). This specimen is the skin mentioned as the sole Sumatran skin (van Marle & Voous 1988; Holmes 1996). It is not widely known that there are twelve more birds collected in North Sumatra between 1919 and 1935 (see postscript by G.F. Mees and Table 1); one was even collected three weeks before the type specimen, and is thus officially the first Sumatran specimen.

The only recent observations on Sumatra are from Jambi province, where during 6-17 January 1996 I visited the Serestra II logging area (2°15-18' S, 101°51-53' E) in the Kerinci Seblat National Park buffer zone near Bangko. During a number of occasions Finsch's Bulbuls were observed in the edge of forest selectively logged 2.5 – 4 years previously, at 470-650 m a.s.l.

Biological Notes

Habitat

Finsch's Bulbul occurs mostly in primary forest, but is reportedly confined to secondary forest and estates in Sabah (Gore 1968). Along the Malinau river the bulbul was observed to be widespread in small numbers in primary forest and its

TABLE 1

Localities of Finsch's Bulbul *Criniger finschii* specimens collected on Sumatra (ZMA: Zoological Museum, University of Amsterdam; NUS: zoological reference collection, National University, Singapore; NMNH: National Museum of Natural History, Leiden).

Sex	Date	Locality	Museum/No.
M	4 Oct 1919	Sungei Tasik (Langkat)	ZMA 18179
M	22 Oct 1919	Sungei Tasik (Langkat)	NUS
M	1 Nov 1919	Sungei Tasik (Langkat)	ZMA 18178
F	1 Dec 1919	Sungei Tasik (Langkat)	ZMA 18176
M	8 Jan 1920	Sungei Tasik (Langkat)	ZMA 18174
M	8 Jan 1920	Sungei Tasik (Langkat)	ZMA 18175
M	8 Jan 1920	Sungei Tasik (Langkat)	ZMA 18177
F	8 Jan 1920	Sungei Tasik (Langkat)	ZMA 18180
M	5 Jul 1920	Sungei Tasik (Langkat)	NMNH
M	22 Dec 1934	Timbang/Serdang	NUS
F	4 Mar 1935	Timbang/Serdang	NUS
F	2 Apr 1935	Timbang/Serdang	NUS
M	11 Apr 1935	Timbang/Serdang	NUS

edges, and in forest that was being selectively logged or had been so one or two years previous to the survey. However, there were no records from degraded forest selectively logged three and four years before. In Jambi (Sumatra) the birds were seen in secondary growth bordering selectively logged forest, where they frequented fruiting trees along a logging road. A similar situation was reported for Barito Ulu, where the birds were only seen in a *ladang* (traditional agricultural field) during a period of fruit abundance (Wilkinson *et al.* 1991). The lowest altitude recorded is 75 m (pers. obs.), whereas highest altitude recorded is 760 m (2,500 ft: King *et al.* 1975), but most records are from the middle part of this range.

Breeding

The nest is unknown, but a female with an egg in the oviduct was caught in March (Medway & Wells 1976). A pair gathering nest material was observed in July (Wells 1984). A juvenile was observed in Barito Ulu on 10 August (Wilkinson *et al.* 1991).

Feeding

In Sumatra birds were observed singly or in small groups, foraging on the small red berries of roadside shrubs; other birds were seen sallying after insects from perches in low shrubs, but also tall trees, in a flycatcher-like manner.

Voice

Calls were tape-recorded by the author in East Kalimantan (Kayan Mentarang NP, 4 February 1992; Malinau, 11 September 1998), and in Jambi, Sumatra (Sungai Sengak, at 470 m, 8 January 1996, 1335 h). The following descriptions were made of the calls: 1. subdued "twut"; also heard in flight. 2. loud, nasal to wheezy, explosive "hwuiikt", rising at the end; heard when at rest. Recordings of both call types are deposited with the National Sound Archive (London) [NSA 62125, 62126, 62127]. Nothing resembling a more complex type of song was heard.

Discussion

Finsch's Bulbul has been infrequently recorded. This paucity of records can be partly attributed to its being restricted to a relatively narrow belt between 75 m and 760 m. More importantly the bulbuls may be overlooked because of their inconspicuous behaviour, normally in the middle storey of dense forest, and only coming to more open areas when fruits are abundant in places such as forest clearings and roadsides. The records from Jambi constitute a major southern extension of its formerly known range in North Sumatra province.

Its apparent scarcity within its restricted altitudinal and geographic range makes this species vulnerable (N. Collar pers. comm. 1999), especially with respect to the alarming rate of forest destruction in this range. Although there exists some tolerance to habitat disturbance, its local disappearance from degraded forest gives reason for concern.

Acknowledgements

GFM would like to thank J. Wattel, K.H. Voous (Zoologisch Museum at Amsterdam), C.E. O'Brien (American Museum of Natural History) and E.R. Alfred (National Museum at Singapore) for the loan of the specimens. The Centre for International Forest Research (Bogor) and the WWF-Indonesia Programme gave the author the opportunity to carry out the fieldwork in Sumatra and Kalimantan.

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Postscript by Gerlof F. Mees

My interest in *Criniger finschii* dates from the mid-1960s, when in the Leiden collection I found, unidentified, a specimen from Sumatra, collected by Jonkheer F.C. van Heurn (1888-1974). Aware that there was only one previous Sumatran record, I contacted Jhr van Heurn to advise him of the presence of this interesting specimen and, intrigued by the similarity in date and locality to van Heijst's specimen, I asked for particulars. Jhr van Heurn informed me that, indeed, the specimen was obtained during a visit of a few days to van Heijst, who was at that time engaged in clearing primary forest to make place for rubber plantations. During his stay, van Heurn shot a small number of birds, among which was the Leiden specimen of *C. finschii*. As this suggested that at that time the species was rather common, I contacted several other museums who might have material, and in that way built up the list of 13 specimens printed above, all of which I have examined. The Singapore specimens from Timbang-Serdang were without a collector's name, but it has now become clear that it must have been H. Bogaarts (cf. Van Marle & Voous 1988: 47, 115). Most surprising was the series of seven specimens in Amsterdam.

I wrote a note about the species, including the table here reproduced, and offered it for publication to "Limosa", as a courtesy to Jhr van Heurn, who was a former editor of "Limosa" and has always particularly encouraged publications on Indonesian birds. Unfortunately, the later editor returned my note: interest in Indonesian birds was at its nadir then, and a simple note on a bird that, after all, had already been recorded from Sumatra, was evidently regarded as too insignificant to justify publication. Thus, my note languished for over 30 years, so that the mistaken notion that the species was known from Sumatra from a single specimen, was perpetuated.

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On types of trochilids in the Natural History Museum, Tring III. *Amazilia alfaroana* Underwood (1896), with notes on biogeography and geographical variation in the *Saucerottia saucerrottei* superspecies

by A.-A. Weller

Received 4 April 2000

Based on biogeographical and morphological evidence, Weller (1999) suggested that the Neotropical hummingbird taxon *Saucerottia* (Bonaparte, 1850) should be separated from the genus *Amazilia* (Lesson, 1843). This classification had been already proposed by others (e.g. Hartert 1900, Simon 1921, Nicéforo Maria 1940) prior to Peters' (1945) check-list of the family Trochilidae. Berlioz (1933) suggested that *Saucerottia*, among other species, should comprise *S. cyanifrons*, *S. saucerrottei*, and *S. viridigaster*.

Among the former taxa of *Amazilia* nowadays regarded as members of *Saucerottia*, the unique type of *Amazilia alfaroana* has been the subject of controversial taxonomic discussion since the bird was collected at Volcan Miravalles, Costa Rica, and described by Underwood (1896). More recent reviewers have proposed that *alfaroana* is a subspecies of *Amazilia cyanifrons* (Bourcier, 1843) (e.g. Carriker 1910, Peters 1945, A.O.U. 1983, Sibley & Monroe 1990) whereas other authors cited the specimen in synonymy with the latter (Simon 1921, suggesting an aberrant trade skin from the so-called "Bogotá" collection) or neglected the bird completely (Berlioz 1933). Slud (1964) considered *alfaroana* as a subspecies of *S. cyanifrons*, pointing to possible sympatry with *S. saucerrottei* (race *hoffmanni*); in fact, this would represent an unique example of a bird occuring within Central America only in Costa Rica, but with its closest relatives found in South America (Walters, pers. comm). With regard to its unusual morphology and the fact that subsequent collectors failed to obtain further specimens or sight records, Stiles *et al.* (1989: 221) stated that this specimen represents "perhaps the foremost ornithological mystery of Costa Rica". Based on a detailed character analysis I present evidence that *alfaroana* should be considered as an extinct species of *Saucerottia*. Moreover, this study indicates that specimens known as *Eriocnemis incultus* (Elliot, 1889) probably represent aberrant melanistic forms of *S. cyanifrons*.

Material and methods

This study is based on data obtained from 59 specimens of *S. cyanifrons* (39 males, 20 females) and 121 specimens of *S. saucerrottei* (81 males, 40 females). The holotype of *S. alfaroana*, deposited in The Natural History Museum, Tring (BMNH 1898.3.12.13; Warren 1966), was compared directly with skins of both species. Moreover, five *Eriocnemis incultus* specimens were included in the analysis. Descriptions of iridescent colours typical of trochiline hummingbirds are given in general terms, while other colours (numbers, specific terms in brackets) refer to Smithe (1975). Plumage terminology follows Johnsgard (1997). Morphometric characters - bill length (from tip to proximal end of nostril), wing chord length (taken from unflattened wing due to properties of wing morphology and skins of trochilids), length of innermost (r1) and outermost rectrices (r5) - were measured with a digital caliper to the nearest 0.5 mm. Single morphometric characters of taxa (with $n \geq 4$ specimens) were compared with parametric test methods (with student's *t*-test, based on ANOVA; significance level $p < 0.05$). Coordinates of collecting sites in Colombia were taken from Paynter (1997), whereas Costa Rican localities (as included in Fig. 1) were either derived from Slud (1964) or various travel maps.

Results and discussion

Distribution of *Saucerottia cyanifrons*

The monotypic Indigo-capped Hummingbird *Saucerottia cyanifrons* has a scattered distribution in the central Andean valleys of Colombia (Fig. 1). It occurs mainly along the western slope of the eastern Andes from Norte de Santander to the upper Magdalena valley, reaching the eastern slope of the Cordillera Central in Huila. In the Cauca valley, the taxon is apparently restricted to the uppermost region, possibly due to interspecific exclusion with *S. saucerrottei* from the mid and lower regions. *S. cyanifrons* has also been reported from the Atlantic lowlands of northwestern Colombia (Los Pendales, Atlantico, 20 m, 10°37′N, 75°13′W; NMNH # 350695-696, 352656), but since the majority of records are from the Andes, these specimens most likely represent stragglers. No geographical variation has been documented (Weller 1998).

S. cyanifrons ranges from 400 to 3,000 m, with the main concentration between 1,000 and 2,000 m. It inhabits edges of wet forest as well as drier, more open habitats with shrubs, plantations, and gardens (Hilty & Brown 1986) where it forages in vegetation at medium to higher level between 4-8 m (Schuchmann, pers. obs.). Otherwise, ecological requirements are poorly known (e.g. Munves 1975, Snow & Snow 1980).

Distribution and taxonomy of *Saucerottia saucerrottei*

S. saucerrottei (Delattre & Bourcier, 1846) occurs in several subspecies from northwestern South America to Central America (Fig. 1). Generally bound to drier

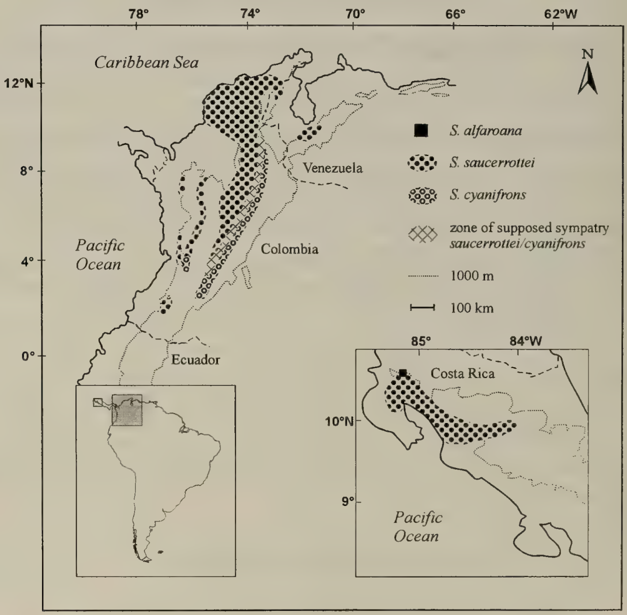
78°
74°
70°
66°
62°W
12°N
8°
4°
0°
Caribbean Sea
N
S. alfaroana
S. saucerrottei
S. cyanifrons
zone of supposed sympatry saucerrottei/cyanifrons
1000 m
100 km
Venezuela
Colombia
Pacific Ocean
Ecuador
85°
84°W
Costa Rica
10°N
9°
Pacific Ocean

Fig. 1: Geographical distribution of *Saucerottia saucerrottei* (Colombia, Costa Rica) and *S. cyanifrons* (Colombia), and type locality of *S. alfaroana* (Costa Rica), based on examined skins.

habitats, it is found mainly in the lowlands and submontane zone. The distribution of the subspecies can be summarized as follows: *S. s. warscewiczi* - N and N central Colombia; *S. s. braccata* - Andes of Merida, Venezuela; *S. s. saucerrottei* - Andean slopes and valleys of NW Colombia; *S. s. hoffmanni*: S Nicaragua to central Costa Rica. All races occupy well-defined geographical ranges, in particular the last form that is broadly isolated from the South American ones. *S. s. warscewiczi* seems to occur regularly along the western slope of the Eastern Andes to the mid Magdalena valley where it is probably sympatric with *S. cyanifrons* in the vicinity of Ocaña, Norte de Santander (08°15´N, 73°20´W; Fig. 1). Another sight record of *S. saucerrottei* from the upper Magdalena valley (Hilty & Brown 1986) may also refer to this race, perhaps indicating seasonal sympatry with *S. cyanifrons*.

The status and taxonomy of *S. s. hoffmanni* (Cabanis & Heine, 1860) are controversial. Beginning with Gould (1861), several authors considered this taxon as a separate species and erroneously applied the name *Saucerottia* (or *Amazilia*) *sophiae* to it (e.g., Salvin 1892, Hartert 1900, Ridgway 1911). More recently, Stiles *et al.* (1989) regarded it an allospecies based on bioacoustic differences from *S. saucerrottei*. By contrast, the absence of significant habitat differences compared with the South American populations, as well as strong similarities in morphology (e.g., biometric data, see Table 1; tail colouration), may argue against specific distinctness.

Morphology of *Saucerottia cyanifrons* and *S. saucerrottei*

Like other members of the genus, *S. cyanifrons* and *S. saucerrottei* are medium-sized trochilids (*c.* 8-11 cm in length, 4-7 g) with relatively straight, blackish bills with

TABLE 1.

Biometric characters of *Saucerottia cyanifrons* and *S. v. viridigaster* compared with *Eriocnemis incultus*, based on examined skins; ranges (sample sizes), means, and standard deviations are given.

Taxon	Bill length (mm)	Wing length (mm)	Rectrix 1 length (mm)	Rectrix 5 length (mm)
S. cyanifrons	♂: 18.0-21.5 (39)	50.0-57.5 (35)	25.0-28.5 (39)	30.0-35.5 (39)
	19.7±0.8	53.9±1.5	26.7±0.8	32.4±1.3
	♀: 18.5-22.5 (20)	49.5-54.0 (17)	25.5-28.0 (19)	29.5-32.5(16)
	20.3±1.1	52.7±1.3	26.9±0.8	31.0±1.0
E. incultus	*♂: 19.0 (1)*	53.0-53.5 (2)	26.0-27.5 (2)	30.5-32.5 (2)
	♀: 20.0-20.5 (2)	51.5-54.0 (2)	26.0-28.0 (2)	28.5-29.5 (2)
S. viridigaster	♂: 18.0-21.0 (28)	48.5-56.5 (26)	24.5-28.5 (28)	26.0-33.5 (26)
	19.7±0.9	53.1±1.8	26.8±1.0	31.1±1.6
	♀: 17.0-21.0 (25)	49.0-54.5 (19)	23.0-28.5 (24)	27.5-32.5 (24)
	19.7±1.1	52.2±1.7	26.3±1.3	29.8±1.4

reddish at the base of the lower mandible, and a golden green basic plumage with a glittering crown and gorget. The tail is Blue Black (90) in both species or steel- to violet-blue (~ Cyanine Blue, 74) in *S. saucerrottei* and slightly forked in each taxon. The discs of the undertail coverts either resemble in colouration the rectrices (*S. s.*) or vary from bluish to Olive-Brown (28, *S. c.*).

Males of *S. cyanifrons* are most readily distinguished from *S. saucerrottei* by their deep blue instead of golden green glittering crown that becomes more turquoise towards the hindneck. In females and immature males, the turquoise colouration also extends to the crown area. Unlike *S. saucerrottei*, the uppertail coverts of *S. cyanifrons* show golden green feather bases and the undertail coverts have pronounced greyish-brown margins.

Considering biometric characters (Fig. 2), I found no significant differences between the biogeographically closely related taxa *S. cyanifrons* and *S. s. saucerrottei* except in wing length ($p < 0.01$). *S. s. hoffmanni* differs strongly from the nominate race in several characters. Wings and innermost rectrices are significantly longer ($p < 0.001$) in *hoffmanni* whereas the bill is on average shorter ($p < 0.001$) than in *S. s. saucerrottei*.

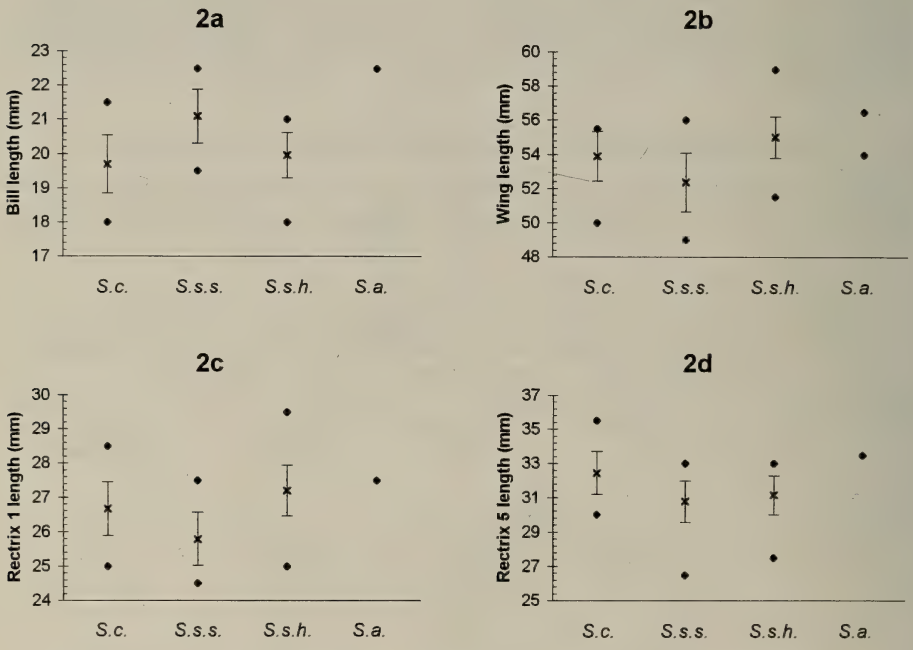

Fig. 2: Biometric characters of *Saucerottia cyanifrons* (*S. c.*, n = 27), *S. s. saucerrottei* (*S.s.s.*, n = 45), *S. saucerrottei hoffmanni* (*S.s.h.*, n = 34), and the type specimen of *S. alfaroana* (*S.a.*), based on examined skins; means, standard deviations and ranges are shown. Note that the two wing length measurements for *S. alfaroana* are due to different sizes of the left and right wing (see also text).

Distribution and morphology of *Saucerottia alfaroana*

The type locality and only collecting site of *S. alfaroana* is located at the southern slope of Volcan Miravalles in Cordillera de Guanacaste, northwestern Costa Rica, where the bird "was taken at a pretty high point" (Underwood 1896: 441; according to the author, altitude between *c*. 450-600 m: 432). Unfortunately, Underwood did not record the habitat, and therefore we have no information whether it was collected in forest or not.

AOU (1983) and Stiles *et al.* (1989) considered that *S. alfaroana* is unlikely to result from hybridization of any two local species occuring at Volcan Miravalles. Moreover, the type specimen exhibits certain plumage characters either typical of all taxa of *Saucerottia*, or at least found in several congeners. The underparts have a glittering dark golden green colouration. Tail and tail coverts differ strongly from dorsal and ventral plumage, respectively. The uppertail coverts are dark violet, thus contradicting Underwood (1896) who described this character as in *S. s. hoffmanni* (where the colouration is actually steel-blue). Likewise, the discs of undertail coverts have a violet-blue shine and whitish margins. The rectrices are shining deep steel-blue, a character also present in *S. cyanifrons* and some subspecies of *S. saucerrottei* (*S. s. braccata*, *S. s. hoffmanni*). The tail bifurcation (6 mm) is similar to that of male *S. cyanifrons*.

Nevertheless, *S. alfaroana* exhibits unique plumage features that are not referable to any other congener. The type has an iridescent turquoise-bluish cap, less well-defined than in *S. cyanifrons*, and a bluish-green back, the latter very different from other representatives of the genus which either show an inconspicuous greenish or a strongly bronzish to copperish back. For example, the latter colour pattern occurs in *S. saucerrottei hoffmanni* as well as in several races of *S. edward* (Panamá) and *S. cupreicauda* (Pantepui region of Venezuela, Guyana, Brazil).

S. alfaroana was initially sexed as a female (as indicated on the specimen label), most probably due to its crown colouration that resembles female *S. cyanifrons* (but here reduced). However, other plumage characters indicate that the type was wrongly sexed. First, the absence of conspicuous whitish subterminal bars in the chin and gorget (as present in females) is characteristic of males of all *Saucerottia* taxa. Second, biometric data of the wings and rectrices are referable to both male *S. cyanifrons* and *S. saucerrottei* although on average they are closer to those found in the latter species (Fig. 2). In particular, the length of wings (left one: 56.5 mm, right one: 54 mm; difference possibly due to preparation) and of the outermost rectrices (r5) in *alfaroana* almost matches the mean values found for *S. s. hoffmanni* (Fig. 2b-c). As an exception, the bill is longer than in males of *S. cyanifrons* and those of *S. s. hoffmanni* but falls just within the upper range of male *S. s. saucerrottei* (Fig. 2a).

Taxonomy and morphology of *Eriocnemis incultus*

The holotype of *E. incultus* (AMNH collection # 38888) was first described by Elliot (1889) and placed in the genus *Eriocnemis*, distant from *Saucerottia* species. Based on colour differences from other *Eriocnemis* species. Salvin & Hartert (1895) doubted its generic position. Among subsequent taxonomists, Simon (1897, 1921), Hartert (1900), Peters (1945), and Greenway (1978) included *E. incultus* in the nominate race of *S. viridigaster*.

As indicated by Simon (1897), the subsequently described taxon *Saucerottia nunezi*, originating from Colombia (Boucard 1892), should be regarded as synonymous to *E. incultus*. Considering morphological aspects, the main character of *E. incultus* and *S. nunezi* is the dull body plumage which can be generally described as Sepia Brown (119), becoming slightly lighter towards the rump and belly (119A; c.f. Greenway 1978). Uppertail coverts and rectrices are Jet Black (89), the undertail coverts have brownish centres with greyish-white fringes. The bill is blackish with a paler base of the lower mandible, fairly straight, and medium-long (Table 1). Altogether, these characters indicate that *E. incultus* represents a melanistic form of a *Saucerottia* species (e.g., Simon 1897, 1921; Hartert 1900).

Contrary to previous classifications, this study suggests that *E. incultus* is probably a melanistic variation of *S. cyanifrons* rather than of *S. viridigaster*. All five *E. incultus* specimens examined are Bogotá trade skins and their collection site is unknown. As a result, conclusions on the taxonomic identity can be drawn only from details in colouration. Males and females show a very dull greenish-black cap, resembling in shape the dark violet blue one in *S. cyanifrons* (e.g., extending to the neck in male *incultus*). As typical for *Saucerottia*, females have also whitish to greyish subterminal bars in the gorget. Morphometrically, *E. incultus* is neither distinct from *S. cyanifrons* nor from *S. v. viridigaster* (Table 1).

Another aberrant specimen of *S. cyanifrons* (ZFMK = 7207), labeled as a melanistic variety, probably male, closely resembles in morphology *E. incultus* but reveals slight differences in detail. The wings are shorter than in males of the latter whereas the other mensural data almost agree with them (Table 1); the body plumage is Sepia coloured (119) with a deep Vinaceous (most similar to Color 4) shine on the gorget and lower throat, becoming very dark purplish towards the flanks and belly (see also Simon 1897); and the uppertail coverts and rectrices are purplish black. The undertail coverts show brownish centres, similar to *E. incultus*, thus differing from typical representatives of *S. cyanifrons*. Additionally, this bird has an almost blackish cap of a similar extension as in males of *S. cyanifrons* and *E. incultus*.

Speciation model in *Saucerottia*

The current distribution and plumage patterns of *S. cyanifrons* and *S. saucerrottei* suggest that both taxa are most likely derived from a common ancestor and differentiated northwest of the Andes, thus being of recent, probably Pleistocene origin (Weller 1998). Moreover, based on recent habitat preferences it is postulated that *S. saucerrottei* originated in the Caribbean lowland dry forest of present northwestern Colombia whereas *S. cyanifrons* evolved in the submontane, more humid forest zone, presumably along the eastern Andean slope of the Magdalena valley. Subsequently, populations of *S. saucerrottei* colonized not only central and western Andean valleys (*S. s. saucerrottei*), the Andes of Mérida (*S. s. braccata*), and the Santa Marta region (*S. s. warscewiczi*) but also the Central American land-bridge where *S. s. hoffmanni* could establish along the volcanic belt raising from the Pacific lowlands of Costa Rica and Nicaragua. Similar to other submontane Andean forest birds (e.g., Haffer 1967, 1970), refuges may have played an important role effecting intrageneric speciation and subspeciation events in *Saucerottia*.

Based on plumage and morphometric patterns and biogeographical evidence, *S. alfaroana* most likely represents a separate species, with closer affinities to *S. saucerrottei* (Walters, pers. comm.). The former occurrence of *S. alfaroana* is most likely referable to the invasion of *S. saucerrottei* descendants than to any westward-directed spread of S. *cyanifrons*. Under the first assumption, it remains speculative whether isolation events or altitudinal segregation split the Costa Rican population of *S. saucerrottei* into the precursors of *S. s. hoffmanni* and *S. alfaroana*, or *alfaroana* originated subsequently from the *hoffmanni* population. Obviously, due to interspecific exclusion the once connected population of *S. cyanifrons* was disrupted by *S. saucerrottei* populations invading the central Andean valleys, leaving back an isolated subpopulation of the former taxon in the uppermost Cauca valley. Against this competitive background and in view of ecological adaptations, it is much less plausible that a hypothetical precursor of *S. alfaroana* derived from *S. cyanifrons* that once invaded the volcanic belt of Costa Rica across the Caribbean and Panamanian lowlands.

Considering morphological affinities, the similar crown colouration of *S. alfaroana* and *S. cyanifrons* could be interpreted as a "leapfrog" pattern (cf. Rensch 1929, Remsen 1984), interrupted by the less contrasted bronzy greenish crown of *S. saucerrottei*. Moreover, the latter species shares several phenotypic features with *S. cyanifrons* and the east Andean congeners *S. viridigaster* and *S. tobaci*, e.g., the dark bluish to violet tail and the darkish golden green, iridescent body plumage. In terms of phylogeny, both colour patterns can be considered as plesiomorphic intrageneric characters, indicating that the evolutionary centre of the genus was located in northwestern South America (Weller 2000). However, for biogeographical reasons the western Andean and the eastern Andean species group are considered to have evolved independently (Weller 1998). Therefore, each of them represents a superspecies, with the western one comprising *S. saucerrottei*, *S. cyanifrons*, and perhaps the extinct *S. alfaroana* (in view of previous allopatry or parapatry with *S. s. hoffmanni*), and the eastern one consisting of *S. viridigaster*, *S. cupreicauda*, and *S. tobaci* (Weller 2000). Due to their proposed common monophyletic origin, allopatric occurrence, and ecological replacement, both groups may form a second order superspecies *sensu* Haffer (1986).

Acknowledgements

I thank the curators and scientific staff of the following institutions for assistance and support during my studies: American Museum of Natural History (AMNH), New York; The Academy of Natural Sciences (ANSP), Philadelphia; Field Museum of Natural History (FMNH), Chicago; Natural History Museum of L.A. County (LACMNH), Los Angeles; Museum of Zoology, Louisiana

State University (LSUMZ), Baton Rouge; Museum of Comparative Zoology (MCZ), Cambridge; The Natural History Museum (BMNH), Tring; Forschungsinstitut Senckenberg (SM), Frankfurt/Main; National Museum of Natural History, Smithsonian Institution (NMNH), Washington D.C.; Western Foundation of Vertebrate Zoology (WFVZ), Camarillo; Zoologisches Forschungsinstitut und Museum A. Koenig (ZFMK), Bonn.

This study profited from the following grants and awards: Frank Chapman Collection Study Grant (AMNH), Jessup Award (ANSP), Field Museum Grant, Ernst Mayr Grant (MCZ), and Smithsonian Short-term Visitor Grant (USNM). I am grateful for critical comments on earlier drafts of the manuscript by M. Walters, BMNH, and K.-L. Schuchmann, ZFMK.

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Brood hosts of Oriental Cuckoo *Cuculus saturatus* in Sabah, Malaysia

by Robert G. Moyle, Alim Biun, Benedict Butit & David Sumpongol

Received 26 April 2000

Wells & Becking (1975) and Becking (1975) used several lines of evidence to examine the specific affinity of a race of *Cuculus* resident in Malaya, Sumatra, Java, and the Lesser Sundas. Plumage, bill and eggshell structure, vocalizations, and brood hosts indicated that this race (*lepidus*) was a subspecies of Oriental Cuckoo *Cuculus saturatus* and not a subspecies of Lesser Cuckoo *Cuculus poliocephalus*, as previously believed. Because of incomplete data, a Bornean form (*insulindae*) was only tentatively transferred from *C. poliocephalus* to *C. saturatus*. Wells (1982) used vocalizations from Mt. Kinabalu, Sabah, to support this decision. At that time no brood hosts were known for the Bornean form.

During May 1999 at Kinabalu National Park, the authors observed juvenile *Cuculus* cuckoos on a nest or being tended by host parents. The brood hosts in all observations were either Mountain Leaf Warbler *Phylloscopus trivirgatus* or Yellow-breasted Warbler *Seicercus montis*. All observations were within 1 km of the park headquarters and *c.* 1,600 m above sea level. On 20 April 1999, a Mountain Leaf Warbler nest was found that contained one large brown-spotted, chalk-white cuckoo egg (19 x 10 mm) in addition to two of the host's eggs. Although an egg with these dimensions is extremely long and narrow, *C. saturatus* eggs are quite variable in size and shape. Becking (1975) measured six eggs of *C. s. lepidus* and found average dimensions of 21.1 x 13.7 mm. However, Madoc (1956) collected two eggs at Fraser's Hill in Malaysia that were much closer to the dimensions we observed (19.0 x 11.8 mm and 18.2 x 11.3 mm).

The nest was a shallow cave in a trail embankment that measured 39 cm in diameter, 35.5 cm in height and was lined with dried leaves. All three eggs were present until 3 May 1999, when the cuckoo egg hatched and the other two eggs were found on the ground near the nest. The juvenile was dark brown, weighed 3 g, and was fed by at least one Mountain Leaf Warbler. By 17 May, the juvenile was covered in a grey plumage with dark banding and was identified as *Cuculus saturatus*. The juvenile had fledged by 22 May. Several sightings of Mountain Leaf Warblers feeding fledgling cuckoos in the vicinity of the nest in late May were presumed to be this individual.

When Yellow-breasted Warblers were observed as brood hosts, single fledglings were being fed by a pair of adults. These observations occurred on 25, 26, and 28 May. The juvenile cuckoo sat motionless for long periods of time. Upon return of a host parent to the area the juvenile began a thin, high begging call and was quickly fed. We are uncertain if the three separate observations of Yellow-breasted Warbler as a brood host are independent because the sightings were within a four day span and within 0.5 km of each other. During late May in Kinabalu Park, adult Oriental Cuckoos were quite abundant. Individuals were observed on two occasions and the "boop, boop-boop" calls described by Wells (1982) were heard throughout the day.

The plumage of the juvenile cuckoos is not consistent with any other cuckoos in the mountains of Borneo and agrees with Becking's (1975) description of *C. s. lepidus*. The underparts of the Kinabalu birds were barred, not streaked. The upperparts were dark with lighter bars, more brownish than grey on the wings. The entire head was barred to varying degrees, most distinctly on the crown. The crown feathers were often puffed out, making the head appear quite large. There was no plumage eye-ring, but the eyelid colour was lighter than surrounding plumage. The tail was short, lightly barred and tipped with white. Tarsi and toes were a light pinkish orange and irides were dark brown. The gape on the nestling was a bright reddish orange. Large Hawk Cuckoo *Hierococcyx sparverioides* is the only other cuckoo found close to this altitude in the Bornean mountains that is liable to cause identification problems

(Sheldon *et al.* 2001). However, Large Hawk Cuckoo juveniles have streaked, not barred, underparts. Photographs of the Oriental Cuckoos on the Mountain Leaf Warbler nest and being fed by Yellow-breasted Warblers were taken by RGM and support this identification.

Mountain Leaf Warbler was mentioned as a brood host for *C. s. lepidus* (Becking 1975) from Java, and from Borneo by Hitoshi *et al.* (1996). There has been one other description of a juvenile cuckoo close to Kinabalu Park Headquarters (Phillipps 1970). This bird was identified tentatively as either a Large Hawk Cuckoo or Hodgson's Hawk Cuckoo *Hierococcyx fugax*. The description (speckled black and white) is vague, but it is conceivable that this was in fact a juvenile Oriental Cuckoo.

Mountain Leaf Warbler and Yellow-breasted Warbler are not unexpected brood hosts for a resident race of Oriental Cuckoo on Borneo. *Phylloscopus* and *Seicercus* warblers are well known as hosts for Oriental Cuckoo throughout its range (Table 1). In contrast, although a variety of hosts has been reported (see Payne 1997), Lesser Cuckoo generally parasitizes the nests of *Cettia* species. The two host species that we observed are the only representatives of their genera that breed in montane forests of Borneo. Sunda Bush Warbler *Cettia vulcania* is resident above 1,500 m on Mt. Kinabalu, but there are no records of it being the object of nest parasitism. These observations of brood hosts add further support to the Wells (1982) and Wells and Becking (1975) decision to place this Bornean cuckoo as a subspecies of *C. saturatus*.

Acknowledgements

RGM is grateful to the Malaysian EPU, Sabah Parks Department and Kinabalu Park for permission to carry out research. In particular, Datuk Lamri Ali, Francis Liew, Dr. Jamili Nais, and Maklarin

TABLE 1

Brood Hosts of Oriental Cuckoo and Lesser Cuckoo

Taxon	Region	Hosts	Source
Cuculus poliocephalus[1]	Himalayas, Myanmar	*Cettia fortipes*	Becking (1981)
	Sikkim	*Cettia pallidipes*	Becking (1981)
	Amur, Japan	*Cettia diphone*	Neufeldt (1971, in Becking 1981) Yamashina (1961)
Cuculus saturatus	Kashmir	*Phylloscopus occipitalis*	Becking (1981)
	Himalayas	*Phylloscopus reguloides*	Becking (1981)
C s. lepidus	Malaya	*Seicercus castaniceps*	Madoc (1956)
	Java	*Seicercus grammiceps*	Becking (1975)
		Phylloscopus trivirgatus	Becking (1975)
C. s. insulindae	Borneo	*Seicercus montis*	this paper
		Phylloscopus trivirgatus	this paper
			Hitoshi *et al.* (1996)

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[1] see Payne (1997) for other possible hosts.

Lakim were very helpful in planning the research program. Helpful comments on the manuscript were provided by F. H. Sheldon, C. Feare, and D. R. Wells. RGM was supported by the American Ornithologists' Union and the LSU Museum of Natural Science.

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A review of the neotropical nightjar species group *Caprimulgus maculosus*, *C. nigrescens* and *C. whitelyi*

by *Johan Ingels*

Received 2 May 2000

Three South American nightjars, the Cayenne Nightjar *Caprimulgus maculosus*, the Blackish Nightjar *C. nigrescens* and the Roraiman Nightjar *C. whitelyi*, form a species group. The Blackish Nightjar is widespread throughout the Amazon basin and the Guianan plateau. Ingels & Ribot (1983), Ingels *et al.* (1984) and Roth (1985) have documented its life history in Suriname and southwestern Brazil respectively. Both the other nightjars have a very limited distribution (Cleere 1998). The Cayenne Nightjar is known from one specimen only, a male collected in French Guiana. The Roraiman Nightjar is restricted to the subtropical zone of the Pantepuí region in the border area of Venezuela, Guyana and Brazil. Nothing is known about the natural history of the Cayenne Nightjar, and knowledge of the Roraiman Nightjar is limited to its habitat choice (Meyer de Schauensee & Phelps Jr. 1978).

This paper presents a review of the nomenclature, physical characters and preferred habitats of these closely related *Caprimulgus* species.

Material

C. maculosus: I examined the only known specimen of this species, the holotype (CMNH 60854, male), collected by Samuel M. Klages at Saut Tamanoir, French Guiana (05° 09' N, 53° 45' W) on the Mana River, *c.* 10 km above its confluence with the Kokioko (or Cockioco) River and now in the Carnegie Museum of Natural History, Pittsburgh, U.S.A. I compared it with eight male *C. nigrescens* specimens in the same collection. One of these (CMNH 61919) was collected at the same locality where the *C. maculosus* specimen was collected.

During 24 August – 4 September 1974 and 1- 3 May 1979, I visited the coastal area between Saint-Laurent-du-Maroni and Cayenne where habitats similar to those at Saut Tamanoir are found.

C. nigrescens: I examined 166 specimens (85 males, 74 females, 7 unsexed) in the following museums: Los Angeles County Museum of Natural History, Los Angeles, U.S.A. (4); Carnegie Museum of Natural History, Pittsburgh, U.S.A. (14); American Museum of Natural History, New York, U.S.A. (102); Nationaal Natuurhistorisch Museum, Leiden, Holland (18) and The Natural History Museum, Tring, U.K. (28).

I spent 425 hours studying *C. nigrescens* in the field in Suriname (Ingels & Ribot 1983) during three visits of four weeks each (6 April – 5 May 1979, 30 March – 28 April 1980 and 12 October – 8 November 1981).

C. whitelyi: I examined the male holotype (BMNH 1888.8.1.96) and the female (BMNH 1888.8.1.97) described and mentioned by Salvin (1885) and now in The Natural History Museum (Tring, U.K.). In addition, I received mensural data of eight specimens (4 males, 4 females) in the Colección Ornithológica Phelps (Caracas, Venezuela) and details of three spirit specimens in the National Museum of Natural History (Washington, U.S.A.).

Results and Discussion

Nomenclature

In the original description of Cayenne Nightjar, *Nyctipolus* (now *Caprimulgus*) *maculosus*, Todd (1920) presented no etymological grounds for his choice of the specific name *maculosus*, meaning « speckled » or « spotted », from the Latin *maculae* = « spots ». Whether the name refers to the white markings in the wings and tail, or to the distinct, broad, blackish mesial streaks on the pileum, is not clear. *C. nigrescens* and *Antrostomus* (now *Caprimulgus*) *whitelyi* had been described earlier by Cabanis (1848) and Salvin (1885) respectively. White markings in the wings and tail are found in males of all three species, whereas distinct black mesial streaks on the pileum are typical for *C. maculosus* only (see Description).

The Blackish Nightjar was first collected in 1842, by Robert Schomburgh, on the lower Essequibo River, Guyana, at 06° 59' N, 58° 23' W. It is indeed the darkest coloured of all neotropical caprimulgids. However the choice by Cabanis (1848) of the specific name *nigrescens*, i.e. the present participle of the Latin verb *nigrescere* = « to become black », should rather have been *nigricans*, i.e. the present participle of the Latin verb *nigricare* = « to be black(ish) ».

The first specimens of the Roraiman Nightjar (Roraima Nightjar in Meyer de Schauensee 1966) were collected in 1883 by Henry Whitely on the Cerro (or Monte = hill, mount) Roraima (Estado Bolívar, Venezuela; 05° 12' N, 60° 44' W). This is a steep-sided tabletop mountain in the highlands at the junction of Venezuela, Guyana and Brazil (Paynter 1982).

Salvin (1885) named the species after the collector, Henry Whitely. The correct specific name is therefore *whitelyi* (Peters 1940, Meyer de Schauensee & Phelps Jr. 1978, Howard & Moore 1980), not *whiteleyi* (Meyer de Schauensee 1970, Gruson 1976, Clements 1978, Walters 1980) or *whitleyi* (Meyer de Schauensee 1966).

Description

The mean wing chord lengths (mm) of males are 139 (N = 1) for *C. maculosus*, 138 (132-141, S.D. = 3, N = 18) for *C. nigrescens* and 156 (154-162, S.D. = 4, N = 4) for *C. whitelyi*. Total body length of *C. maculosus* and of *C. nigrescens* is *c.* 20 cm; *C. whitelyi* is slightly longer, *c.* 22 cm.

The cryptic colour patterns of caprimulgids are hard to describe. Personal experience, with *C. nigrescens* specimens in museums and with live *C. nigrescens* in the field, shows that the extent to which the white throat patch is visible depends largely on the preparation of the skin, or on the live bird's posture e.g. roosting, incubating, excited. The "large white patch on either side of the lower throat" and the "very narrow, indistinct tawny collar, barred brown" of *C. maculosus* (Cleere 1998) is largely a consequence of preparation of the unique skin. The elongated form of skins "enlarges" the throat and neck areas and exaggerates the white throat patch and the tawny collar. In the field these distinctive characters would hardly be visible in a roosting *C. maculosus*.

Males of all three species have white markings in the wings and tail but the locations vary between species (Table 1). In primaries, the white patches are situated where the outer web broadens. *C.whitelyi* has markings in the form of a narrow bar, rather than spots as in *C.nigrescens* and *C.maculosus*. In rectrices, the white patches are found at the tips. Although there is some variation in the amount of white in the tail and in the wings, probably an age-related phenomenon (Ingels & Ribot 1982), the general pattern is species related.

Females of *C.nigrescens* and *C.whitelyi* have the same general colour pattern as males, except for the pattern of wing and tail patches. The female of *C. maculosus* appears to be unknown, so whether she has a pattern of white or rufous-buff wing and tail markings is therefore uncertain. An unidentified nightjar was caught by hand and later released by Dujardin (pers. comm. 1986) in 1982, near Saül (03° 35' N, 53° 12' W) in the interior of French Guiana. The 10th and 9th primaries had a yellowish-brown and a yellowish-white patch in the outer and inner web respectively. The 8th and 7th primaries had a whitish patch on both outer and inner web. The tail showed whitish tips to both the 4th and 3rd rectrices. Although Dujardin first thought this bird to be a male *C. nigrescens* with an aberrant pattern of yellowish-white and yellowish-brown wing patches, he later referred to the bird he caught as having been a female *C. maculosus* (Collar *et al.* 1992). However, nightjars generally moult their primaries descendantly, i.e. outwards, and immature males often have tawny, buff or buffish-white primary markings instead of the white markings of adults. Thus the unidentified nightjar could have been a moulting young male *C.maculosus* having

TABLE 1

Pattern of white wing and tail patches in male *Caprimulgus maculosus*, *C. nigrescens* and *C. whitelyi*. Primaries and rectrices are counted from inside outwards. A patch is present when indicated with an x.

		C. maculosus N = 1	*C. nigrescens* N = 29	*C. whitelyi* N = 4
WING PATCHES				
Primaries	**Web**			
10th	Outer			X
	Inner	X		X
9th	Outer	X		X
	Inner	X	X	X
8th	Outer	X	X	X
	Inner	X	X	X
7th	Outer	X	X	
	Inner	X	X	
TAIL TIPS				
Rectrices	**Web**			
5th	Outer	X		
	Inner	X	X	
4th	Outer	X	X	
	Inner	X	X	X
3rd	Outer	X	X	
	Inner		X	X
2nd	Outer	X	X	
	Inner		X	

white adult markings in the moulted 7th and 8th primaries and yellowish immature ones in the unmoulted 9th and 10th primaries.

The females of *C. nigrescens* have no white markings at all in the wings and tail, while the females of *C. whitelyi* have a pattern of narrow tawny bars in the primaries and whitish tips to the tail, similar to that of males.

Habitats

C. maculosus: a male only of this species was collected. No details about the habitat in which the type specimen was found are known. Dujardin's presumed female was caught on the road from the village to the aerodrome of Saül in typical *C. nigrescens* habitat (Pelletier pers. comm.).

The Mana River, with many boulder-strewn rapids, is a river typical for the Guianan plateau. There are two types of habitat in the vicinity : an "open habitat" along the river itself, and a nearby "forest habitat". The *open habitat* is provided by large boulders and sand banks in the river, by sandy or stony riverbanks and by rare small savannah-like areas on the river banks. The *forest habitat* is formed by closed-canopy forest with scarce undergrowth, and with tree-fall openings and sometimes small, man-made clearings.

Although caprimulgids are known to occur wherever appropriate habitat occurs and to invade newly created surroundings that meet their low demands of suitability (Ingels *et al*. 1999), they normally occupy species-specific habitats. The two habitats described above where *C. maculosus* can be expected are found throughout French Guiana and the Guianan plateau. It is therefore surprising that only one specimen has ever been collected and that the species has not yet been observed in the field.

The grounds for Meyer de Schauensee's statement (1970) that the preferred habitat of this species is "dry open country" are unknown and probably speculative.

C. nigrescens: this nightjar prefers roadsides and sandy, gravelly or rocky open places in three particular biotopes: savannahs, forests and rivers. It is less common along sandy roads in more open savannahs with scattered bushes and more common along gravelly laterite roads through forest. It is also common on rocks or sandy islands in, and sandy banks along, rivers and on large granite outcrops in forests. *C. nigrescens* has two fundamental requirements to its habitat: it must be open and it must have scattered low vegetation and bushes, close to which it likes to roost and breed. It is therefore not found in grassy or densely overgrown savannahs or in the interior of primary or secondary forest.

This nightjar is widespread throughout the tropical part of the Amazon basin wherever appropriate habitat is available. It is a most successful coloniser, invading newly created surroundings that meet its low demands of habitat suitability e.g. recently opened roads (Ingels & Ribot 1983) and airstrips (Dick *et al*. 1984).

Klages collected both *C. maculosus* and *C. nigrescens* at or near Saut Tamanoir. Three specimens (CMNH 60854 of *C. maculosus* and CMNH 61919 and 62254 of *C.*

nigrescens) prove that both species can occur at least in the same locality, but not necessarily in the same habitat.

C. whitelyi: It prefers humid terrain with scattered and dense vegetation between 1,300 and 1,800 m altitude in the subtropical zone on the slopes and summits of the *tepuís* or tabletop mountains in the Guianan highlands (Meyer de Schauensee & Phelps Jr. 1978). It shows a preference for open places (tree-falls, clearings) (Lentino pers. comm.). It has been collected on the Cerros Roraima, Duida, Jaua, Urutani and Ptaritepuí (specimen COP 26899).

Thus, *C. whitelyi* is a species endemic to the higher slopes and summits of the *tepuís*. It may be more common than the few specimens suggest as few *tepuís* have been explored well.

In the tropical zone between 100 and 1,100 m altitude on the lower slopes of these same tabletop mountains, *C. nigrescens* has also been collected e.g. specimen COP 32344 on Cerro Ptaritepuí (05° 46' N, 61° 46' W) (Perez pers. comm.). However, although both species do occur on slopes of the same *tepuís*, their habitats are clearly separated by altitude.

Acknowledgements

I thank N.Cleere and C.Feare who respectively as reviewer and editor made useful comments on this paper. For their help in various ways, I am indebted to: J.P.Angle, J.A.Dick, J.-L.Dujardin, H.D.Jackson, L.F.Kiff, W.E.Lanyon, M.Lentino R., G.F.Mees, A.J.Mobbs, K.C.Parkes, V.Pelletier, L.A.Perez Ch., W.H.Phelps Jr., J.-H.Ribot, P.Roth, R.W.Schreiber, K.-L.Schuchmann, B.Thomas Trent and O.Tostain.

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An early contribution to the avifauna of Paraná, Brazil. The Arkady Fiedler expedition of 1928/29

by Christoph Hinkelmann & Jürgen Fiebig

Received 5 May 2000

Among Brazilian states, Paraná possesses one of the best-studied avifaunas (e.g. Straube & Bornschein 1995, Anjos & Schuchmann 1997). Only recently, Scherer-Neto & Straube (1995) published a comprehensive summary of its ornithological history together with a detailed list of all bird species credibly recorded for the state. A major contribution to this knowledge was supplied by Polish ornithologists in the first two decades of the 20th century. Tadeusz Chrostowski (1878-1923) conducted field work from December 1910 to January 1911 and again in the last months of 1913. Together with Tadeusz Jaczewski and S. Borecki, Chrostowski again went to Paraná, and between 1921 and 1924 (after 1923 only Jaczewski), they collected specimens of *c.* 260 species and subspecies of birds (Gebhardt 1964, Scherer-Neto & Straube 1995). The ornithological results of their expeditions were edited by Chrostowski (1912, 1921, 1922-1923), and later by Jaczewski (1925), Domaniewski (1925), Sztolcman (1926a, 1926b), and Sztolcman & Domaniewski (1927).

While these data are properly documented, the work of Arkady Fiedler appears to have been neglected. Born in Poznán (named Posen and located in the Prussian province of the same name in Germany at that time) on 28 November 1894, he started a versatile career as a poet. In 1927, he began to travel to many countries in all continents. Collecting zoological specimens for natural history museums, he considered himself a researcher and became an author of travel reports. Beginning in 1935, he published several books, some of which became very popular in Poland and were translated to other languages. In September 1939 he stayed in Tahiti, but soon returned to Europe to fight with Polish troops supporting the western allies. In 1946, he returned to Poland and wrote most of his exciting adventure reports. He died in 1985 (details from Wielka Encyklopedia Powszechna 1963 and Nowa Encyklopedia Powszechna 1995).

In November 1928, Arkady Fiedler and Antoni Wisniewski, a zoological preparator, travelled to Paraná to continue the investigations made by Tadeusz Chrostowski, who had died of malaria on 4 April 1923, while heading an expedition to the river Ivaí (Gebhardt 1964). Fiedler and Wisniewski collected at four major localities (Fig. 1, and described in more detail below) and gathered *c.* 1,150 birds, 100 mammals, reptiles and amphibians as well as more than 6,000 insects. In addition, they collected valuable ethnological material before leaving Paraná in May 1929. Unfortunately, their expedition´s notes provide only very scant information (colouration of irides, legs, and bills, as well as tail measurements of some 25 individuals; Museum of Natural History, Berlin, unpublished records on Fiedler´s expedition).

The ornithological collection, or at least its largest portion, is preserved at the Museum für Naturkunde (Museum of Natural History) in Berlin, but it was never adequately examined after Erwin Stresemann undertook a preliminary determination of the bird specimens in 1946/47. Today, 1,014 specimens collected by Fiedler and Wisniewski in Paraná are present in the Berlin collection (see Appendix). Twenty one specimens noted by Stresemann are missing, so that if the preliminary record of 1,150 bird specimens was correct, only 10% of the original collection is preserved in other museums, or lost. Unfortunately, however, the quality of almost all remaining specimens is low due to poor skill of preparation.

Localities

The following data are included in the unpublished expedition records preserved at the Museum of Natural History, Berlin. Localities 1 to 4 are indicated in Fig. 1. Note that since Fiedler's and Wisniewski's collecting much natural forest habitat in Paraná has been destroyed.

1. *Cândido de Abreu.* A settlement indicated by Fiedler as the westernmost point of (European Brazilian) civilization at that time, as the borderline between culturally initiated habitat shift and primary forest inhabited only by Indians. Located 40 km NW of Teresa Cristina (Fiedler: Teresina), Fiedler and Wisniewski established their expedition´s base there in December 1928, and stayed until March 1929. The settlement´s population comprised *c.* 900 Poles, 600 Germans and 200 Brazilians. The mixed forest consisted of a natural composition of deciduous trees and conifers. Several collecting localities in the very close vicinity used by Fiedler and Wisniewski were all situated between 400 and 800 m a.s.l.

2. *Faxinal da Boa Vista* (Fiedler: Fachinal de Pedrão). Located S of Cândido Abreu and *c.* 30 km SW of Teresa Cristina at *c.* 600 m a.s.l. The expedition visited the site in early 1929, probably in February. Due to the proximity to Cândido Abreu, Fiedler and Wisniewski spent only a short time at Faxinal and returned to their expedition´s base. Fiedler gave no indication on vegetation, habitats or habitat shift due to human exploitation at this collecting site.
3. *Barra Branca*. An area located 2 km from Morretes, E of the Serra do Mar mountain ridge. Fiedler and Wisniewski collected here from 24 March to 27 April 1929. They experienced the locality (*c.* 20 m a.s.l.) as the warmest region of Paraná, and described the landscape as swampy with a few dry hills, stocked with forest, whereas the lowlands were characterised by only solitary trees.
4. *Campininha*. Located *c.* 30 km SE of Curitiba and *c.* 1,000 m a.s.l. in the Serra do Mar mountain ridge, Fiedler indicated the vicinity as belonging to the savannah region S of Piraquara, a grassland landscape interrupted by swampy areas and gallery forests. He spent 2 weeks there from 29 April to 14 May 1929.

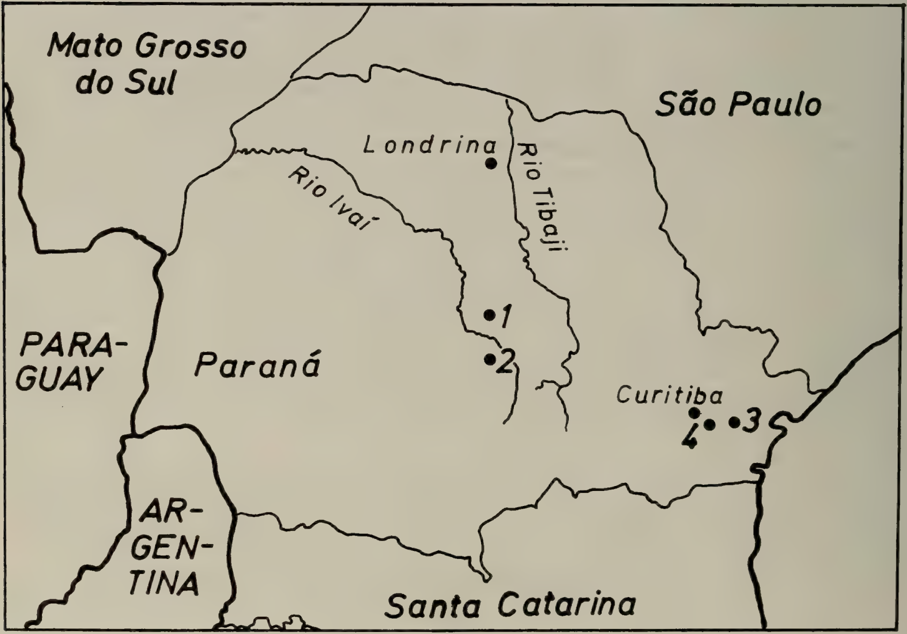

Fig. 1: Collecting localities of Arkady Fiedler and Antoni Wisniewski in the Brazilian state of Paraná, 1928/29. 1 = Cândido de Abreu, 2 = Faxinal da Boa Vista, 3 = Barra Branca, 4 = Campininha.

Results

A complete list of all species and the number of specimens collected by Fiedler and Wisniewski 1928/29 in Paraná, which are preserved at the Museum of Natural History, Berlin, is given in the Appendix. In the following, we merely provide some information on species and specimens which deserve a particular treatment as rare or little-observed etc.

UNIFORM CRAKE *Amaurolimnas concolor*

In general surveys (Taylor, in del Hoyo *et al.* 1996, Taylor & van Perlo 1998), the species is listed as occurring in Paraná. Its occurrence in this state is indicated by the distribution map by Taylor (in del Hoyo *et al.* 1996) and is mentioned in the species account, for race *castaneus*, in Taylor & van Perlo (1998). However, Sick (1993) indicated the states of Espirito Santo and São Paulo as the southern limit of this species´ distribution, and it was not mentioned by Scherer-Neto & Straube (1995). The single specimen collected by Fiedler and Wisniewski in Barra Branca (No. 46.340) may thus be the first confirmed or published record of this species for the state of Paraná, although the bird is often overlooked due to its secretive habits (Taylor & van Perlo 1998).

SCALED PIGEON *Columba speciosa*

Fiedler and Wisniewski collected a single specimen of the Scaled Pigeon at Barra Branca (No. 2000.36) and thus provided another registration for Paraná of this obviously rare species (Straube & Bornschein 1995, Scherer-Neto & Straube 1995).

GOLDEN-CAPPED PARAKEET *Aratinga auricapilla*

Three specimens collected by Fiedler and Wisniewski in the vicinity of Cândido de Abreu (Nos. 46.425, 2000.37, 2000.38) and thus confirmed another of very few records of this threatened species for Paraná (Collar *et al.* 1992, Scherer-Neto & Straube 1995). There appear to be very few, if any, recent records of the Golden-capped Parakeet in the state (Guy Kirwan, pers. comm.)

VINACEOUS AMAZON *Amazona vinacea*

A single specimen of this endangered parrot was collected by Fiedler and Wisniewski in the vicinity of Cândido de Abreu. The collectors´ spare notes gave no details of this species, and they thus did not notice any particularities about its frequency, appearance in flocks, close relationship to forests dominated by Paraná Pine *Araucaria angustifolia* etc. The specimen was identified by Erwin Stresemann but it is no longer present in the collection of the Museum of Natural History in Berlin.

OCHRE-COLLARED PICULET *Picumnus temminckii*

Although the White-barred Piculet *P. cirratus* also occurs in Paraná (Anjos & Schuchmann 1997) and freely interbreeds with the Ochre-collared Piculet (Winkler *et al.* 1995), all specimens (8♂, 13♀, 1 imm.; Nos. 2000.39-2000.60) collected by

Fiedler and Wisniewski clearly belong to *P. temminckii*. Due to frequent hybridisation with neighbouring congeners, Scherer-Neto & Straube (1995) listed both White-barred and Ochre-collared Piculets under *P. cirratus*.

VARIABLE ANTSHRIKE *Thamnophilus caerulescens*

Two subspecies of this impressive thamnophilid occur in Paraná, nominate *caerulescens* in the west and *gilvigaster*, the Tawny-bellied Antshrike, in eastern parts of the state (Sibley & Monroe 1990). They are still considered as conspecific, although Meyer de Schauensee (1966) and Wolters (1975-1982) indicated that both *caerulescens* and *gilvigaster* may be turn out to be distinct biological species. The specimens obtained by Fiedler and Wisniewski at the same localities (*caerulescens*: 1 ♂ from Cândido de Abreu, 2 ♂ from Barra Branca, Nos. 46.393, 46.418, 46.557; *gilvigaster*: 2 ♂ and 2 ♀ from Cândido de Abreu, 3 ♂ and 4 ♀ from Barra Branca, Nos. 46.359, 46.499, 46.558, 47.8, 2000.61-2000.66) provide evidence that they should be considered as two separate species. The taxonomic situation in these birds is very complicated and still unresolved. The taxa should be considered as subspecies of *T. caerulescens* until more analysis is undertaken; it is highly likely that more than one subspecies is involved (under both the Biological and Phylogenetic species concepts), but it is very difficult to determine the limits and diagnosability of different populations (Mort Isler, pers. comm.). Recently, at least two studies in Bolivia and Paraná, Brazil, are in progress to shed light on this taxonomic puzzle.

YELLOW-BELLIED SEEDEATER *Sporophila nigricollis*

Scherer-Neto & Straube (1995) indicated that this species was merely observed (no published record, no scientific specimen in collections) in the Itaipu Reserve, close to the border to Argentina. A single specimen, a ♀ collected by Fiedler and Wisniewski in Barra Branca (No. 2000.67) may thus be the first published record of a specimen collected in Paraná although its occurrence there should be expected with regard to the distribution map published by Ridgely & Tudor (1989), as well as the indication of its occurrence in Paraná by Armani (1985).

Acknowledgements

Thanks are due to Dr Sylke Frahnert, head of the Ornithological Department of the Museum of Natural History, Berlin, for every support of our studies. Katarzyna Berner translated Fiedler´s expedition notes and an accompanying letter from the Polish, and Dr. Eugeniusz Nowak and Siegfried Eck provided valuable information on Fiedler´s biography. J. Fernando Pacheco and Guy Kirwan kindly reviewed an earlier version of our manuscript, and Mort Isler provided important considerations on the taxonomy of *Thamnophilus caerulescens*.

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APPENDIX

Species collected by Arkady Fiedler and Antoni Wisniewski in Paraná 1928/29, number of specimens preserved at the Museum of Natural History, Berlin, and localities
1 = Cândido de Abreu and its vicinity; 2 = Faxinal da Boa Vista,
3 = Barra Branca, 4 = Campininha

	Localities				
No. of specimens	1	2	3	4	without
Tinamidae					
Crypturellus obsoletus	1				
Crypturellus tataupa	1				
Nothura maculosa				2	
Podicipedidae					
Tachybaptus dominicus				1	
Phalacrocoracidae					
Phalacrocorax brasilianus			1		
Ardeidae					
Syrigma sibilatrix				1	
Butorides striatus	1		3	2	
Cathartidae					
Coragyps atratus	3				
Cathartes aura					1
Accipitridae					
Elanoides forficatus	1				
Ictinia plumbea	6				
Buteo magnirostris	2			2	
Buteo leucorrhous				1	
Falconidae					
Micrastur ruficollis				1	
Falco femoralis				1	
Falco sparverius	5	2			2
Daptriidae					
Milvago chimachima				1	
Polyborus plancus				1	
Cracidae					
Ortalis guttata			1		
Penelope obscura	1			1	
Penelope superciliaris	1				
Phasianidae					
Odontophorus capueira		1			
Rallidae					
Aramides saracura	8		1		1
Amaurolimnas concolor			1		
Jacanidae					
Jacana jacana			8		

Charadriidae					
Charadrius collaris	1				
Columbidae					
Columba speciosa			1		
Columba plumbea		1			
Columbina talpacoti	2			2	
Leptotila verreauxi	3	1	1	1	
Geotrygon montana				1	
Psittacidae					
Propyrrhura maracana	3	3			
Aratinga leucophthalmus	1				
Aratinga auricapilla	3				
Pyrrhura frontalis	7	4			
Forpus xanthopterygius			3	1	
Brotogeris tirica	4		1	1	1
Pionopsitta pileata	1				
Pionus maximiliani	14	3			1
Coccyzidae					
Coccyzus melacoryphus	2				
Piaya cayana	2		1		
Crotophagidae					
Crotophaga major	2				
Crotophaga ani	5	1	1		
Guira guira	3		1		
Strigidae					
Otus choliba	3				
Glaucidium brasilianum	5				
Athene cunicularia				16	
Strix virgata				1	
Nyctibiidae					
Nyctibius griseus	1				
Caprimulgidae					
Podager nacunda	1				
Macropsalis forcipata			1		
Apodidae					
Streptoprocne zonaris		3			
Trochilidae					
Ramphodon naevius	1				
Phaethornis eurynome	1				
Phaethornis squalidus			1		
Campylopterus cirrochloris			1		1
Melanotrochilus fuscus					1
Anthracothorax nigricollis	8		1		13
Stephanoxis lalandi	1		4		
Chlorostilbon aureoventris					3
Thalurania glaucopis	1		9		7

Leucochloris albicollis	4		2		5
Agyrtria versicolor	15		7		28
Polyerata fimbriata	1		1		
Calliphlox amethystina			2		16
Trogonidae					
Trogon surrucura	1			1	
Alcedinidae					
Megaceryle torquata				1	
Chloroceryle amazona	2				
Chloroceryle americana			2		
Momotidae					
Baryphthengus ruficapillus	1				
Bucconidae					
Notharchus macrorhynchos			6		1
Nystalus chacuru	5				
Malacoptila striata	3		1		1
Ramphastidae					
Baillonius bailloni	9		1		
Ramphastos dicolorus	18	12			2
Picidae					
Picumnus temminckii	19	1	1		1
Melanerpes flavifrons	8		3		
Veniliornis spilogaster	5		1	2	1
Piculus flavigula			1		
Piculus aurulentus	1	1			
Colaptes melanochloros	7				
Colaptes campestris	2			1	
Celeus flavescens	2		1		
Dryocopus galeatus	1				
Dryocopus lineatus	6				
Campephilus robustus	4	1			1
Dendrocolaptidae					
Sittasomus griseicapillus	4	1		1	
Xiphocolaptes albicollis	2	2			
Dendrocolaptes platyrostris	4		2		
Lepidocolaptes squamatus				2	
Lepidocolaptes fuscus	1		5		
Campyloramphus falcularius	1				
Furnariidae					
Synallaxis ruficapilla	3		9		
Cranioleuca obsoleta	1				
Syndactyla rufosuperciliata	4			1	1
Philydor atricapillus			5		
Philydor rufus	7	1			
Automolus leucophthalmus			1		
Cichlocolaptes leucophrus	1				1

Heliobletus contaminatus				3	
Xenops minutus			1		
Sclerurus scansor	1	1	1		
Lochmias nematura	2		1		
Thamnophilidae					
Hypoedaleus guttatus			1		
Mackenziaena leachii			2		
Mackenziaena severa	2				
Thamnophilus caerulescens	5		9	1	1
Dysithamnus mentalis	1		4		
Myrmotherula unicolor			2		
Drymophila ferruginea			10		
Drymophila squamata			2		
Pyriglena leucoptera		1	15		
Myrmeciza squamosa	1		1		
Formicariidae					
Formicarius colma			6	1	
Conopophagidae					
Conopophaga lineata	5		4		
Conopophaga melanops			1		
Rhinocryptidae					
Psilorhamphus guttatus			1		
Tyrannidae					
Phyllomyias fasciatus			2		
Phyllomyias virescens		1	3		
Camptostoma obsoletum	3				
Myiopagis viridicata	4				
Elaenia obscura			6		
Serpophaga nigricans	1				
Capsiempis flaveola	2				
Mionectes rufiventris	1		3		
Leptopogon amaurocephalus			1		
Phylloscartes kronei			3		
Myiornis auricularis			1		
Tolmomyias sulphurescens					1
Platyrinchus mystaceus	2				
Myiobius barbatus			1		
Myiophobus fasciatus			1		
Contopus cinereus	1		2		
Cnemotriccus fuscatus	3		2		
Pyrocephalus rubinus			1		1
Xolmis cinerea	1				
Heteroxolmis dominicana				2	
Colonia colonus	2		8		
Attila phoenicurus		2			
Attila rufus			1		

Sirystes sibilator	1		1		
Myiarchus swainsoni	1				
Tyrannus savana	3				
Tyrannus melancholicus	4	1			
Empidonomus varius	4				
Megarynchus pitangua	3				
Conopias trivirgata			1		
Myiodynastes maculatus	10	1			
Myiozetetes similis	1		4		
Legatus leucophaius	2				
Pitangus sulphuratus	3			1	
Pachyramphus viridis			1		
Pachyramphus polychopterus	2				1
Schiffornis virescens	1	1	5		
Tityra cayana	7	2			
Tityra inquisitor	1		1		
Pipridae					
Manacus manacus			12		3
Chiroxiphia caudata	1		15		1
Piprites chloris			1		
Cotingidae					
Phibalura flavirostris	2			3	
Carpornis cucullatus			3	1	
Pyroderus scutatus	2				
Procnias nudicollis			2		1
Oxyruncus cristatus			5		
Hirundinidae					
Tachycineta albiventer	1				
Notiochelidon cyanoleuca			2		1
Stelgidopteryx fucata				1	
Motacillidae					
Anthus lutescens				2	
Troglodytidae					
Thryothorus longirostris			4		
Troglodytes aedon	2				
Muscicapidae (Turdidae)					
Platycichla flavipes			9	1	
Turdus rufiventris	4	1	9		
Turdus amaurochalinus	1		1		
Turdus albicollis			3	1	1
Emberizidae (Thraupidae)					
Zonotrichia capensis	2		5	1	
Haplospiza unicolor	1				
Poospiza lateralis				2	
Sicalis flaveola	4			1	2
Volatinia jacarina				2	

Sporophila caerulescens	5		2		
Sporophila nigricollis			1		
Oryzoborus angolensis			2		
Amaurospiza moesta	1				
Coryphospingus cucullatus	4				
Pitylus fuliginosus	4				
Cissopis leveriana	6	1			
Hemithraupis ruficapilla			1		
Tachyphonus coronatus	6	1	10		
Tachyphonus cristatus			3		
Trichothraupis melanops	1		2		
Thraupis sayaca	4		2		
Thraupis cyanoptera			5		
Thraupis palmarum			1		
Ramphocelus bresilius			9		
Pipraeidea melanonota	3				
Euphonia violacea			14		
Euphonia chalybea	3				1
Euphonia pectoralis			1		
Tangara seledon			1		
Tangara cyanocephala			10		
Tangara preciosa		1		1	
Dacnis cayana			6		1
Tersina viridis	1				
Coereba flaveola			5		
Conirostrum speciosum			1		
Parulidae					
Parula pitiayumi	3				
Geothlypis aequinoctialis			4		
Basileuterus culicivorus	1		5		
Basileuterus leucoblepharus	2	1			
Basileuterus rivularis	2		1		1
Vireonidae					
Cyclarhis gujanensis			2	1	
Vireo chivi	8				
Hylophilus poicilotis			4		
Icteridae					
Cacicus haemorrhous	6		2		
Cacicus chrysopterus		3			
Gnorimopsar chopi	2				
Molothrus bonariensis	1				
Corvidae					
Cyanocorax caeruleus			1		
Cyanocorax chrysops	9				

Reproductive condition, moult, and body mass of birds from Isabel, Solomon Islands

by Andrew W. Kratter, David W. Steadman,
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Received 30 May 2000

With 61 species confined to the archipelago, the Solomon Islands (including Bougainville) have one of the world's most distinctive avifaunas (Stattersfield *et al.* 1998). Despite this uniqueness, the natural history of Solomon Island birds remains poorly known. Although recent treatments by Webb (1992) and Kratter *et al.* (in press) have substantially increased our knowledge of the avifauna on Isabel Island, one the main islands in the archipelago, nothing has been published about the timing of breeding and moult in birds on Isabel, as is largely the case throughout the Solomons (but see Sibley 1951 and Schodde 1977). Body masses from some widespread Solomon Island species that occur on Isabel were given by Galbraith & Galbraith (1962), Schodde (1977), and Dunning (1993), yet most of these data were based on small samples from other islands.

Aside from a small collection made in 1995 (H.P. Webb & M. LeCroy, pers. comm.), birds have not been collected on Isabel since the Whitney South Seas expedition in 1927, which obtained series of skins for most species on Isabel but did not preserve skeletal specimens, tissue samples or spread wings. Locality data were imprecise at best. The most recent techniques in specimen preparation (including saving skin, skeleton, and tissues samples from the same individual) and data recording (see Winker 2000) have opened up new avenues for research into fields including phenology (e.g., moult, reproduction, fat levels), blood parasites (Steadman *et al.* 1990), food habits (Franklin & Steadman 1991), prehistoric extinctions (e.g., Steadman 1995), and systematics (e.g., inferring relationships from sequencing DNA). These developments have led to a much-improved ecological, taxonomic, and historical basis for identifying conservation priorities in Oceania.

In 1997-98, we visited several sites on Isabel, as well as four islets just off the main island. We made detailed observations of the avifauna and prepared specimens collected by local hunters. In a sister paper (Kratter *et al.* in press), we focus on community patterns of the avifauna at a lowland forest site (Garanga River), including some new records for the island and discussion of conservation issues. In this paper, we present data on reproductive condition, moult, and body mass of Isabel's birds.

Study sites and methods

Isabel, the third largest island in the Solomon archipelago (3995 km^2), is a long (199 km) and narrow (in most places 20-25 km wide) island (Fig. 1). Our field research in east-central Isabel in 1997 and 1998 was undertaken at the following sites (Fig. 1):

1) lowland portions of the Garanga River (8°S, 159°E), described in detail in Kratter *et al.* (in press); 9-23 July 1997 and 22–29 June 1998.
2) Fera Island (8°05.5'S, 159°35'E), 123 ha islet 2.5 km north of Buala; 4 July 1997, 6, 9-10 July 1998. A grass airstrip is along the western edge of this flat island. The vegetation is rather dense with a low (< 25 m) canopy.
3) Sulei Island (8°04.5'S, 159°32'E), 87 ha islet, separated from the mainland by a narrow (*c.* 100 m wide) channel and 4 km northwest of Fera Island; 6, 9-10 July 1998. The vegetation on Sulei is much more developed than on Fera, with tall forest (canopy > 30 m) covering much of this slightly hilly island. Mangrove forests dominate the island's periphery.
4) Kiaba Island (8°00'S, 159°27'E), *c.* 2 ha islet, 2 km east of the mouth of the Garanga River; 6 July 1997, 21, 26 June 1998. The island is dominated by scrubby forest.
5) Hakelake Island (7°53'S, 159°14'E), a tiny islet (*c.* 1 ha); 8 July 1998. Coconut palms and scrubby forest ring the island, with a thicket of dense shrubs in the centre.
6) Longedo'u River (8°10.5'S, 159°35.0'E), middle elevation forest at 500 m; 1-4 July 1998. The hills in this area are covered in dense forest, with occasional small (< 1 ha) clearings for farm plots. Stands of bamboo (*Bambusa* sp.) up to 10 cm diameter occur adjacent to several farms. Epiphytic growth is much more pronounced than in lowland forests along the Garanga River. The Longedo'u River, *c.* 10 m wide at this elevation, is fast-running, with several short cascades.

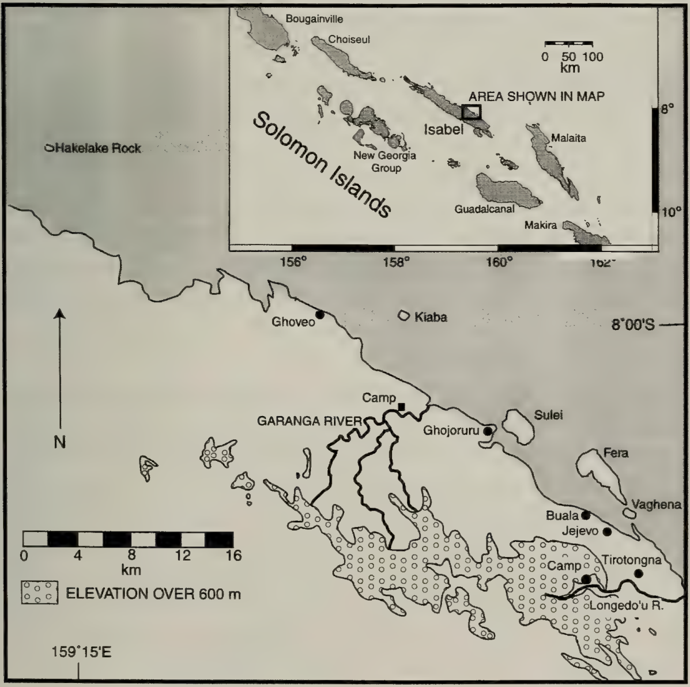
Bougainville
Choiseul
0 50 100
km
AREA SHOWN IN MAP
Solomon Islands
Isabel
Malaita
New Georgia Group
Guadalcanal
Makira
8°
10°
156°
158°
160°
162°
Hakelake Rock
Ghoveo
Kiaba
8°00'S
N
Camp
GARANGA RIVER
Ghojoruru
Sulei
Fera
Vaghena
Buala
Jejevo
Tirotongna
Camp
Longedo'u R.
0 4 8 12 16
km
ELEVATION OVER 600 m
159°15'E

Fig. 1. Map of Isabel and offshore islets, showing study sites.

Our visits coincided with the April to September dry season of the Solomon Islands (Cain & Galbraith 1956, Blaber 1990). In general, the weather was mild to hot and humid, with partly cloudy to cloudy skies. Some rain occurred on most field days (7 days in 1997 and 5 days in 1998), including a series of storms from 15-18 July 1997. Winds were generally light.

Most birds were collected with shotguns by local hunters. Mark Hafe, an Isabel islander, hunted in both years and was thoroughly familiar with the plumages, vocalizations, and behaviour of all bird species on Isabel. To a much lesser extent, we also used ground-level mist nets at our Garanga River and Longedo'u River sites to collect birds in interior forest or across rivers. Specimens are housed at the Florida Museum of Natural History (UF), University of Washington Burke Museum (UWBM), and Solomon Islands National Museum (SINM). Tissues preserved in lysis buffer are stored at UWBM. Specimen tag data include sex, reproductive condition, moult scoring (remiges, rectrices, and body), soft part colours, subdermal fat levels, stomach contents (when present, saved and stored at UF), skull ossification, presence/absence of bursa, and habitat.

Results

We collected a total of 433 specimens, representing 70 species, in our two sessions of fieldwork on Isabel. Of these 70 species, 66 are residents, representing 87% of the 76 resident landbird species known from Isabel (Kratter *et al.* in press). The four non-resident or marine species were a shorebird migrant from the north (*Actitis hypoleucos* – vernacular names of all species are given in Table 1), two landbird migrants from the south (*Chrysococcyx lucidus* and *Halcyon sancta*), and a near-shore marine tern (*Sterna bergii*). The specimens of two species (*Amaurornis molucannus* and *Eudynamys scolopacea*) were the first to be collected on Isabel.

Most of the specimens (317, 73% of the birds collected) were collected at the Garanga River site (Kratter *et al.* in press). The others were distributed as follows: Longedo'u River, 44 specimens; Sulei Island, 29; Fera Island, 18; Kiaba Island, 17; and Hakelake Island, 8. Specimens collected on the islets are the first we know of from these locales.

Breeding

Although our sample represents only a fraction of the yearly cycle, there are few or no published data on breeding and moult cycles for almost all species of Solomon Island birds. Evidence of reproductive activity (in males, cloacal protuberance, enlarged testes, and/or enlarged seminal vesicles; in females, developing ova, presence of brood patch, and/or wide and convoluted oviduct) was found in 30 of the 63 species for which we collected adult specimens. Among the 27 species with five or more adult specimens (Table 1), 17 had at least one reproductively active individual (classified as "enl" in Table 2). These consisted of nine of 12 non-passerines and eight of 15 passerines. The only species with all (N=11) adult specimens in breeding condition was *Pachycephala pectoralis*, which is more territorial than most other local passerines. At least some gonadal evidence of reproductive activity was found in 23 of the 25 specimens for the highly frugivorous columbid genera (*Ptilinopus* and *Ducula*), 15 of 16 adult specimens for the three species of *Rhipidura*, and 26 of 43 adult specimens for the three species of *Monarcha*.

Evidence of breeding activity was rare, on the other hand, in starlings and mynas (1 of 30 adult specimens), parrots (2 of 36), kingfishers (3 of 35), and cuckoo-shrikes (4 of 27). Three of these four groups (two of four starlings and mynas, parrots, and kingfishers) are predominantly cavity nesters. However, the hornbill (*Aceros plicatus*), one of the two other cavity nesters at our site, was reproductively active. Both of our specimens of *Eurystomus orientalis*, the other cavity nester, are immatures, and thus we cannot assess reproductive activity for this species.

Moult

Intraspecific moult data were extremely variable (Table 2), suggesting that some species have protracted moult schedules, as is common in tropical birds (e.g., in Sarawak; Fogden 1972). Two groups of birds did not conform to this overall pattern. First, wing and tail moult was absent or nearly so in most or all adult individuals of *Ptilinopus viridis*, *Chalcopsitta cardinalis, Micropsitta finschii, Aceros plicatus, Coracina tenuirostris, Rhipidura cockerelli, Aplonis grandis, A. metallica,* and *Dicaeum aeneum*. Second, wing and/or tail moult were found in most or all individuals of *Nesoclopeus woodfordi, Cacatua ducorpsii, Monarcha castaneiventris, Mino dumontii*, and *Corvus woodfordi*. We see no clear pattern here in either a taxonomic sense or by feeding guild. To assess moult schedule more rigorously on a species by species basis, larger samples of specimens from throughout the annual cycle are needed.

Body mass

Our body mass data are the first to be published for four species (*Nesoclopeus woodfordi, Nesasio solomonensis, Pitta anerythra,* and *Monarcha cinerascens*). In addition, we report the first body mass data for the Solomon Islands for three other species (*Ixobrychus flavicollis, Amaurornis moluccanus,* and *Caloenas nicobarica*).

For the 45 species where we have data from both adult males and females (Table 1), we found no obvious (i.e., < 7.5%) sexual difference in body mass in 26 species (*Anas superciliosa, Aviceda subcristata, Megapodius [freycinet] eremita, Ptilinopus viridis, Ducula pistrinaria, Cacatua ducorpsii, Trichoglossus haematodus, Collocalia esculenta, Hemiprocne mystacea, Alcedo atthis, Halcyon sancta, H. saurophaga, Coracina papuensis, C. tenuirostris, C. holopolia, C. caledonica, Rhipidura cockerelli, Monarcha castaneiventris, M. barbata, M. cinerascens, Myiagra ferrocyanea, Pachycephala pectoralis, Aplonis cantoroides, A. grandis, Dicaeum aeneum,* and *Zosterops metcalfii*). Males averaged larger than females in 13 species (*Nesoclopeus woodfordi, Porphyrio porphyrio, Ptilinopus superbus, Chalcopsitta cardinalis, Micropsitta finschii, Aceros plicatus, Coracina lineata, C. papuensis, C. holopolia, Rhipidura leucophrys, Aplonis metallica, Mino dumontii,*

TABLE 1

Specimen data for birds collected on Isabel.
Age: imm = juvenal or immature (subadult plumage, and/or bursa present, and/or skull <100% ossified, the latter for doves through passerines only); adult = adult plumage and/or no bursa present and/or skull 100% ossified. Sites: GR = Garanga River, LR = Longodo'u River, FI = Fera Island, HI = Hakelake Island, SI= Sulei Island, KI = Kiaba Island; number of specimens of each class given for each site.
* species or subspecies endemic to the Solomon archipelago.

FAMILY & species	sites						
age & sex	GR	LR	SI	FI	KI	HI	mass (g)
ARDEIDAE							
Egretta sacra sacra Pacific Reef-Egret							
adult ♀	2	-	-	-	-	-	380, 440
Nycticorax caledonicus mandibularis Rufous Night-Heron							
adult ♂	1	-	-	-	-	-	750
*Ixobrychus flavicollis *woodfordi* Black Bittern							
adult ♀	1	-	-	-	-	-	337
imm ♂	1	-	-	-	-	-	320
Butorides striatus solomonensis Striated Heron							
adult ♀	1	-	-	-	-	-	226
ANATIDAE							
Anas superciliosa pelewensis Pacific Black Duck							
adult ♂	1	-	-	-	-	-	642
adult ♀	2	-	-	-	-	-	560, 640
imm ♂	3	-	-	-	-	-	590, 615, 635
ACCIPITRIDAE							
*Aviceda subcristata *gurneyi* Pacific Baza							
adult ♂	4	-	-	-	-	-	285, 298, 317, 356
adult ♀	2	-	-	-	-	-	319, 330
imm ♀	1	-	-	-	-	-	303
*Haliastur indus *flavirostris* Brahminy Kite							
adult ♂	1	-	-	-	-	-	606
*Haliaeetus *sanfordi* Sanford's Fish-Eagle							
subad ♂	1	-	-	-	-	-	1980
*Accipiter novaehollandiae *rufoschistaceus* Gray Goshawk							
adult ♂	2	-	-	-	-	-	172, 187
adult ♀	1	-	-	-	-	-	245
imm ♂	1	-	-	-	-	-	182
imm ♀	1	-	-	-	-	-	207
*Accipiter *imitator* Imitator Sparrowhawk							
adult ♂	1	-	-	-	-	-	208

MEGAPODIDAE							
Megapodius [freycinet] eremita Melanesian Scrubfowl							
adult ♂	1	-	-	-	-	-	810
adult ♀	1	-	-	1	-	-	795, 860
RALLIDAE							
*Amaurornis moluccanus *nigrifrons* Rufous-tailed Bush-hen							
adult ♂	-	1	-	-	-	-	229
*Nesoclopeus *woodfordi immaculatus* Woodford's Rail							
adult ♂	2	-	-	-	-	-	670, ?
adult ♀	5	-	-	-	-	-	410, 530, 533, 569, 571
imm ♂	4	-	-	-	-	-	457, 575, 623, 640
imm ♀	1	-	-	-	-	-	486
chick ♀	1	-	-	-	-	-	56
chick sex?	1	-	-	-	-	-	62
Porphyrio porphyrio samoensis Purple Swamphen							
adult ♂	1	-	-	-	-	-	918
adult ♀	1	-	-	-	-	-	615
SCOLOPACIDAE							
Actitis hypoleucos Common Sandpiper							
imm ♀	1	-	-	-	-	-	33.5
LARIDAE							
Sterna bergii cristata Crested Tern							
imm ♂	-	-	1	-	-	-	291
COLUMBIDAE							
*Macropygia mackinlayi *arossi* Mackinlay's Cuckoo-Dove							
adult ♂	-	2	1	1	-	-	76, 94, 100, 103
imm ♂	5	1	-	1	-	-	65.5, 72, 79.5, 82, 85, 89, 90
*Chalcophaps stephani *mortoni* Stephan's Dove							
adult ♀	1	-	-	-	-	-	123
Ptilinopus s. superbus Superb Fruit-Dove							
adult ♂	-	2	-	-	-	-	131, 139
adult ♀	1	3	-	-	-	-	121, 122, 124,132
Ptilinopus viridis lewisii Claret-breasted Fruit-Dove							
adult ♂	3	-	-	-	-	-	124, 125, 135
adult ♀	5	1	-	-	-	-	112, 114, 118, 118, 122, 124
*Ducula rubricera *rufigula* Red-knobbed Imperial-Pigeon							
adult ♂	3	-	-	-	-	-	560, 612, 638
adult ♀	4	-	1	-	-	-	610, 651, 655, 660, 765
Ducula p. pistrinaria Island Imperial-Pigeon							
adult ♂	-	-	-	-	1	-	520
adult ♀	-	-	1	-	1	-	501, 525
Caloenas n. nicobarica Nicobar Pigeon							
adult ♀	-	-	1	-	-	-	675

PSITTACIDAE							
Chalcopsitta *cardinalis *Cardinal Lory*							
adult ♂	7	-	-	-	-	-	220, 231, 234, 235, 240, 267, 268
adult ♀	1	-	-	-	-	-	221
imm ♂	1	-	-	-	-	-	220
Trichoglossus haematodus massena Rainbow Lorikeet							
adult ♂	1	-	-	-	-	-	109
adult ♀	2	1	-	-	-	-	98, 98, 111
*Cacatua *ducorpsii* Ducorps's Cockatoo							
adult ♂	4	-	-	-	-	-	383, 386, 402, 410
adult ♀	2	-	-	-	-	-	365, 386
*Micropsitta finschii *nanina* Finsch's Pygmy-Parrot							
adult ♂	12	-	-	-	-	-	11.1, 11.9 , 12.4, 12.5, 13.0, 13.2, 13.5, 13.6, 14, 14.1, 14.2, 15
adult ♀	2	-	-	-	-	-	11.3, 12.6
imm ♂	2	-	-	-	-	-	13.1, 14
imm ♀	-	2	-	-	-	-	11.4, 11.7
Eclectus roratus solomonensis Eclectus Parrot							
adult ♂	3	1	-	-	-	-	395, 405, 406, 440
imm ♂	-	1	-	-	-	-	375
Geoffroyus heteroclitus heteroclitus Singing Parrot							
adult ♀	-	1	-	-	-	-	169
CUCLIDAE							
Chrysococcyx lucidus lucidus Shining Bronze Cuckoo							
imm ♂	1	-	-	-	-	-	20.0
imm ♀	3	1	-	-	-	-	20, 22.8, 24.1, 25.8,
*Cacomantis variolosus *addendus* Brush Cuckoo							
imm ♀	1	-	-	-	-	-	49
*Eudynamys scolopacea *alberti* Asian Koel							
imm ♂	1	-	-	-	-	-	140
STRIGIDAE							
*Ninox *jacquinoti jacquinoti* Solomon Islands Hawk-Owl							
adult ♂	2	-	-	-	-	-	253, 260
adult ♀	1	-	-	-	-	-	277
*Nesasio *solomonensis* Fearful Owl							
adult ♀	-	1	-	-	-	-	1155
PODARGIDAE							
*Podargus ocellatus*inexpectatus* Marbled Frogmouth							
adult ♀	-	1	-	-	-	-	175
APODIDAE							
Collocalia vanikorensis lugubris Uniform Swiftlet							
adult ♀	-	-	-	1	-	-	11.2
*Collocalia esculenta *?becki* Glossy Swiftlet							
adult ♂	1	-	-	-	-	-	7.3
adult ♀	-	1	-	-	-	-	7.5

HEMIPROCNIDAE							
Hemiprocne mystacea woodfordiana Moustached Treeswift							
adult ♂	1	-	-	-	-	-	57
adult ♀	1	-	-	-	-	-	59
ALCEDINDAE							
*Alcedo atthis *salomonensis* Common Kingfisher							
adult ♂	5	-	-	-	-	-	25.8, 29.2, 29.5, 35, ?
adult ♀	4	-	-	-	-	-	28.5, 30, 32, 33
*Ceyx lepidus *meeki* Variable Kingfisher							
adult ♂	3	1	-	-	-	-	15, 16, 16.5, 18.1
adult ♀	1	2	-	-	-	-	16.7, 20.0, 22.5
imm ♀	1	-	-	-	-	-	19.4
*Halcyon *leucopygia* Ultramarine Kingfisher							
adult ♂	7	1	-	-	-	-	42.5, 45, 45.5, 45.7, 46, 47, 48, 49.1
adult ♀	2	-	1	-	-	-	42, 49, 61
imm ♂	-	-	-	1	-	-	49
Halcyon sancta Sacred Kingfisher							
adult ♂	1	-	-	-	-	-	42
adult ♀	-	-	1	-	-	-	43
imm ♂	2	-	-	-	-	-	43, 48.7
imm ♀	1	-	-	-	-	-	40
*Halcyon chloris *alberti* Collared Kingfisher							
adult ♂	1	-	-	1	2	-	67, 68, 70, 72
adult ♀	-	-	-	1	-	-	102
Halcyon s. saurophaga Beach Kingfisher							
adult ♂	-	-	-	-	2	1	104, 118, 137
adult ♀	-	-	-	-	-	1	127
CORACIDAE							
*Eurystomus orientalis *solomonensis* Dollarbird							
imm ♂	1	-	-	-	-	-	152
imm ♀	1	-	-	-	-	-	153
BUCEROTIDAE							
*Aceros plicatus *harterti* Blyth's Hornbill							
adult ♂	3	-	-	-	-	-	1680, 1760, 1890
adult ♀	1	-	-	-	-	-	1450
PITTIDAE							
*Pitta *anerythra anerythra* Black-faced Pitta							
adult ♂	-	2	-	-	-	-	83, 89
HIRUNDIDIDAE							
Hirundo tahitica subfusca Pacific Swallow							
imm ♂	1	-	-	-	-	-	14.6
imm ♀	1	-	-	-	-	-	15.8

CAMPEPHAGIDAE

*Coracina lineata *nigrifrons* Yellow-eyed Cuckoo-shrike							
adult ♂	2	1	1	-	-	-	56, 60, 64.5, 71
adult ♀	5	-	1	-	-	-	49.6, 51.5, 57, 60, 60.6, 62.5
imm ♀	1	-	-	-	-	-	53.5
*Coracina papuensis *perpillada* White-bellied Cuckoo-shrike							
adult ♂	3	-	-	-	-	-	66, 68, 69.5
adult ♀	2	-	-	-	-	-	57, 67
imm ♂	1	-	-	-	-	-	67.2
imm ♀	1	-	-	-	-	-	61
*Coracina tenuirostris *saturatior* Slender-billed Cicadabird							
adult ♂	1	-	-	-	-	-	55
adult ♀	2	1	-	-	-	-	56, 57, 58.5
imm ♂	2	-	-	-	-	-	55.5, 61
imm ♀	1	-	-	-	-	-	62
*Coracina *holopolia holopolia* Solomon Islands Cuckoo-shrike							
adult ♂	3	1	-	-	-	-	41.2, 48, 51, 63
adult ♀	1	-	-	-	-	-	47.0
imm ♂	2	-	-	-	-	-	49, 52
*Coracina caledonica *welchmani* Melanesian Cuckoo-shrike							
adult ♂	1	-	1	-	-	-	156, 163
adult ♀	1	-	-	-	-	-	165

RHIPIDURIDAE

Rhipidura leucophrys melaleuca Willie Wagtail							
adult ♂	3	-	-	1	1	-	33, 34.4, 36, 38, 39
adult ♀	5	-	-	-	-	-	28.5, 33.4, 33.5, 33.5, 33.5
imm ♂	2	-	-	-	-	-	26.5, 35
imm ♀	1	-	-	-	-	-	29.1
*Rhipidura rufifrons *commoda* Rufous Fantail							
adult ♂	1	1	-	-	-	-	12.0, 12
imm ♂	1	-	-	-	-	-	12.0
imm ♀	1	-	-	-	-	-	9.7
*Rhipidura *cockerelli interposita* White-winged Fantail							
adult ♂	1	1	-	-	-	-	16.0, 17
adult ♀	2	-	-	-	-	-	17, 18.1
imm ♀	2	-	-	-	-	-	14.5, 15.3

MONARCHIDAE

*Monarcha *c. castaneiventris* Chestnut-bellied Monarch							
adult ♂	11	1	4	1	-	-	24.5, 25.0, 25, 25.3, 25.5, 25.5, 26.3 26.5, 27.1, 27.5, 27.5, 28, 28, 28.3, 28.4, 30.5, 32
adult ♀	3	-	2	1	-	-	22, 23, 25.5, 26.5, 27.1, 29.3
imm ♂	1	1	1	1	-	-	23, 24.6, 25, 25.5
imm ♀	1	-	-	-	-	-	24.8
*Monarcha *barbata barbata* Black-and-white Monarch							
adult ♂	6	-	1	-	-	-	20.8, 22, 22.3, 22.5, 23.5, 24.2, 24.5

adult ♂	3	2	1	-	-	-	20.8, 21.9, 23.0, 23, 23.5, 24
imm ?	2	-	-	-	-	-	22.5, 24.5
imm ♀	1	-	-	-	-	-	17.5
Monarcha cinerascens impediens Islet Monarch							
adult ♂	-	-	-	-	3	4	23.2, 23.5, 24.0, 24, 24.5, 25.5, 27
adult ♀	-	-	-	-	1	-	25.5
imm ♂	-	-	2	3	-	1	22.5, 23.5, 23.8, 24.0, 24.5, 24.5
imm ♀	-	-	3	3	1	-	21.5, 22.0, 22.1, 22.1, 23.0, 23, 24
*Myiagra *f. ferrocyanea* Steel-blue Flycatcher							
adult ♂	3	-	1	-	-	-	12.1, 12.1, 13, 13.1
adult ♀	1	-	-	-	-	-	13.0
imm ♂	-	1	-	-	-	-	13.5
PACHYCEPHALIDAE							
*Pachycephala pectoralis *orioloides* Golden Whistler							
adult ♂	6	3	-	-	-	-	45, 47, 48, 49, 52, 54, 54.5, 56, 57.5
adult ♀	1	1	-	-	-	-	41.5, 56.5
STURNIDAE							
Aplonis *grandis grandis Brown-winged Starling							
adult ♂	2	-	-	-	-	-	170, 190
adult ♀	5	-	-	-	-	-	151, 156, 178, 182, ?
Aplonis metallica nitidus Metallic Starling							
adult ♂	4	-	1	-	-	-	50.2, 51, 58, 62, 64
adult ♀	6	-	-	-	-	-	47.6, 50.5, 51.8, 53.5, 53.5, 58
imm ♀	-	-	-	1	-	-	56
Aplonis cantoroides Singing Starling							
adult ♂	-	-	-	-	2	-	51, 54.5
adult ♀	-	-	-	-	1	-	55
imm ♂	-	-	-	-	1	-	54
imm ♀	-	-	-	-	1	-	48
Mino dumontii kreffti Yellow-faced Myna							
adult ♂	5	-	-	-	-	-	194, 239, 246, 250, 262
adult ♀	5	-	-	-	-	-	190, 205, 221, 236, 242
adult ?	1	-	-	-	-	-	215
imm ♀	1	-	-	-	-	-	202
CORVIDAE							
*Corvus *woodfordi vegetus* White-billed Crow							
adult ♀	3	-	-	-	-	-	555, 563, 568
imm ♂	1	-	-	-	-	-	615
imm ♀	1	-	-	-	-	-	560
MELIPHAGIDAE							
*Myzomela *lafargei* Scarlet-naped Myzomela							
adult ♂	1	2	1	-	-	-	12.5, 12.8, 12.8, 13.0
imm ♀	-	-	1	-	-	-	12.5

NECTARINIIDAE							
Nectarinia jugularis flavigaster Olive-backed Sunbird							
adult ♂	5	-	-	-	-	1	8.8, 9.1, 9.5, 9.7, 10.0, 10.1, 10.5
adult ♀	3	-	-	-	-	-	7.1, 8.9, 9.1
imm ♂	2	-	-	-	-	-	7.7, 7.8
imm ♀	2	-	1	-	-	-	7.0, 8.0, 8.1
DICAEIDAE							
*Dicaeum *aeneum aeneum* Midget Flowerpecker							
adult ♂	5	-	-	-	-	-	7.1, 7.5, 8.3, 8.5, 8.8
adult ♀	2	-	-	-	-	-	8.5, ?
imm ♂	5	-	-	-	-	-	7.6, 7.7, 7.9, 8.2, 8.9
imm ♀	5	-	-	-	-	-	7.0, 7.3, 7.6, 7.6, 8.1
ZOSTEROPIDAE							
*Zosterops *metcalfii metcalfii* Yellow-throated White-eye							
adult ♂	5	2	-	-	-	-	12, 13.5, 14.5, 14.5, 14.5, 15.0, ?
adult ♀	2	-	-	-	-	-	13.8, 14.4
imm ♂	2	-	-	-	-	-	11.6, 14.7
imm ♀	3	-	-	-	-	-	12, 13.7, 14
imm ?	1	-	-	-	-	-	13.5
TOTAL SPECIMENS	**317**	**44**	**29**	**18**	**17**	**8**	**433**
TOTAL SPECIES	**58**	**26**	**16**	**9**	**6**	**3**	**70**

and *Nectarinia jugularis*). Females averaged larger than males in six species, all non-passerines (*Accipiter novaehollandiae, Ducula rubricera, Ninox jacquinoti, Ceyx lepidus, Halcyon leucopygia,* and *H. chloris*). Given the small sample sizes, however, only one species showed a statistically significant difference between the sexes in body mass (*Rhipidura leucophrys*, t=2.42, p=0.04, n=8).

Discussion

Although our collections include one species listed as "near-threatened" (*Corvus woodfordi*), two species listed as "vulnerable" (*Haliaeetus sanfordi*, *Pitta anerythra*) and two others (*Accipiter imitator, Nesoclopeus woodfordi*) listed as "endangered" (Collar *et al.* 1994), the population levels suggested by our fieldwork indicate that these classifications are exaggerated for all five species (Kratter *et al.* in press). Our collecting had no impact on local or island-wide populations of birds. In no case do the specimens approach 1% of the individuals of that species on Isabel, and for the majority of species, our collections represent less than 0.01% of the population.

Our data are the first on breeding and moult phenology for birds on Isabel. Only two other studies in the main archipelago of the Solomon Islands have assessed breeding cycles for entire avifaunas. On Bougainville, Schodde (1977) made an extensive collection of birds during a dry season visit (July – September) to a mid-elevation site. Sibley (1951) made a wet season visit (October – February) to the New Georgia group. We have found no data on breeding and moult in Solomon Island birds between February and late June.

Schodde detected some breeding activity in 57 of 70 species he collected on Bougainville. As was the case on Isabel, Schodde recorded little breeding activity in cuckoo-shrikes (5 of 15 specimens) and kingfishers (8 of 41 specimens). In contrast to our findings, however, he found significant breeding activity in parrots (23 of 51 specimens) and starlings (20 of 24 specimens). As Schodde's study continued for two months further into the dry season than ours, it seem likely that many parrots and starlings initiate breeding late in the dry season.

On New Georgia, Sibley (1951) found 31 of 63 specimens (49%) of adult residents with enlarged gonads; 17 of the 63 (27%) were moulting. We found fewer specimens with enlarged gonads (96 of 320, or 30% of adult specimens), although including the slightly enlarged category (91 of 320 adult specimens; Table 2) yields a percentage, 58%, similar to Sibley's. Our more detailed scoring of moult in Table 2 precludes direct comparison with Sibley's data.

The high percentage of breeding birds found in both the dry (Schodde 1977, herein) and early wet seasons (Sibley 1951) suggests that the breeding season is protracted in Solomon Island birds. Assuming that the avifaunas from different islands share a similar phenology, which seems likely given the similar climate regimes, the primary breeding season of Solomon Island birds probably continues from at least the beginning of the dry season (June) far into the wet season (February?).

To the southeast and west, respectively, Vanuatu and New Guinea share a similar wet and dry seasonality with the Solomon Islands, as well as many conspecific or closely related bird taxa. In Vanuatu, the principal breeding season of landbirds is from August to December (Marshall & Harrison 1941, Bregulla 1992). In various places in both highland and lowland New Guinea, breeding activity increases during the dry season (June - November) in most places and reaches a peak at the beginning of the rainy season (December-January), although some breeding occurs all year (Ripley 1964, Rand & Gilliard 1968, Diamond 1972, Beehler et al 1986). Our data suggest that a similar generalization may apply in the Solomon Islands.

Acknowledgements

Field research was supported by the University of Florida College of Liberal Arts and Sciences (grant RDA-1-23 95-86 to DWS) and by Hugh Fergusson, Eddy fellowships, and the Ornithology Endowment of the University of Washington Burke Museum (to CEF and CES). Museum-based research and manuscript preparation were supported by the National Science Foundation (grant EAR-9714819 to DWS). Terry Taylor helped to prepare specimens. In Honiara, Moses Biliki, Joe Horako, Lawrence Foanaota, and Audrey Rusa graciously provided logistical support and research permits from the national government of the Solomon Islands. On Isabel, Price Webb, Amos Gigini, Mark Hafe, Austel Ruumana, and William, Veronica, and Roger Manehage supplied companionship, local research permits, access to the site, and immeasurable help in the field.

TABLE 2

Reproductive condition and moult data for birds collected on Isabel. Number of specimens are indicated for each age/sex class ("-" = none collected in that class). Gonads: "enl" = testes enlarged or well-developed ova or eggs; "se" = testes or ovary slightly enlarged, ova slightly enlarged; oviduct convoluted; "ne" = testes not enlarged or ovary undifferentiated. Moult (sexes combined within age categories): remiges & rectrices: "pr" = moult present (1+ feathers sheathed), "ab" = moult absent; body moult: "hm" = heavy or moderate moult; "lm" = light or trace moult; "ab" = moult absent. See Table 1 for criteria on which age determined, subspecies, English names, and site localities.

					MOULT						
		GONADS			remiges		rectrices		body		
FAMILY & species	age & sex	enl	se	ne	pr	ab	pr	ab	hm	lm	ab
ARDEIDAE											
Egretta sacra	adult ♀	1	1	-	2	-	1	1	1	1	
Nycticorax caledonicus	adult ♂	-	1	-	-	1	-	-	-	-	-
Ixobrychus flavicollis	adult ♀	1	-	-	-	1	-	1	-	-	1
	imm ♂	-	-	1	-	1	-	1	-	-	1
Butorides striatus	adult ♀	-	1	-	1	-	1	-	1	-	-
ANATIDAE											
Anas superciliosa	adult ♂	-	1	-	-	3	2	1	2	1	-
	adult ♀	2	-	-							
	imm ♂	-	-	3		-	3	-	2	1	-
ACCIPITRIDAE											
Aviceda subcristata	adult ♂	-	2	2	-	3	2	1	1	-	2
	adult ♀	1	-	1							
	imm ♀	-	-	1	-	1	-	1	-	-	1
Haliastur indus	adult ♂	-	-	1	-	1	-	1	-	-	1
Haliaeetus sanfordi	subad ♂	-	-	1	1	-	-	1	-	-	1
Accipiter novaehollandiae	adult ♂	1	-	1	1	2	1	2	1	1	1
	adult ♀	-	1	-							
	imm ♂	-	-	1	-	2	-	1	-	1	-
	imm ♀	-	-	1							
Accipiter imitator	adult ♂	1	-	-	-	1	-	1	-	-	1
MEGAPODIDAE											
Megapodius eremita	adult ♂	1	-	-							
	adult ♀	2	-	-	1	2	1	2	1	1	1
RALLIDAE											
Amaurornis moluccanus	adult ♂	-	1	-	-	1	-	1	1	-	-
Nesoclopeus woodfordi	adult ♂	-	1	1	4	3	5	1	4	2	-
	adult ♀	3	2	-							
	imm ♂	-	-	4	2	-	2	3	2	2	-
	imm ♀	-	-	1							
	chick ♀	-	-	1							
	chick sex?										
Porphyrio porphyrio	adult ♂	-	1	-	-	2	-	2	1	1	-
	adult ♀	-	1	-							
SCOLOPACIDAE											
Actitis hypoleucos	imm ♀	-	-	1	-	1	-	1	-	-	1
LARIDAE											
Sterna bergii	imm ♂	-	-	1	-	1	-	1	-	1	-

COLUMBIDAE											
Macropygia mackinlayi	adult ♂	-	2	2	2	2	2	1	1	2	-
	imm ♂	-	-	7	3	3	2	4	-	2	3
Chalcophaps stephani	adult ♀	1	-	-	-	1	-	1	-	-	1
Ptilinopus superbus	adult ♂	2	-	-	-	6	-	6	2	4	-
	adult ♀	4	-	-							
Ptilinopus viridis	adult ♂	-	2	-	2	7	-	8	1	7	-
	adult ♀	3	2	1							
Ducula rubricera	adult ♂	-	2	1	4	4	3	4	-	4	3
	adult ♀	5	-	-							
Ducula pistrinaria	adult ♂	1	-	-							
	adult ♀	1	1	-	1	2	1	2	-	2	1
Caloenas nicobarica	adult ♀	-	1	-	1	-	1	-	1	-	-
PSITTACIDAE											
Chalcopsitta cardinalis	adult ♂	-	-	7	-	7	2	5	-	1	6
	adult ♀	-	1	-							
	imm ♂	-	-	1	-	1	-	1	-	-	-
Trichoglossus haematodus	adult ♂	-	-	1	-	4	1	3	1	-	3
	adult ♀	-	1	2							
Cacatua ducorpsii	adult ♂	1	-	3	4	2	2	4	2	2	1
	adult ♀	-	1	1							
Micropsitta finschii	adult ♂	-	2	10	4	10	1	13	-	6	6
	adult ♀	-	1	1							
	imm ♂	-	-	2	-	3	-	3	-	1	1
	imm ♀	-	-	2							
Eclectus roratus	adult ♂	-	2	1	3	1	2	2	1	2	1
	imm ♂	-	-	1	1	-	-	1	1	-	-
Geoffroyus heteroclitus	adult ♀	1	-	-	-	1	-	1	1	-	-
CUCLIDAE											
Chrysococcyx lucidus	imm ♂	-	-	1	2	2	2	2	1	-	1
	imm ♀	-	-	3							
Cacomantis variolosus	imm ♀	-	-	1	1	-	-	1	1	-	-
Eudynamys scolopacea	imm ♂	-	-	1	1	-	-	1	1	-	-
STRIGIDAE											
Ninox jacquinoti	adult ♂	-	-	2	1	1	1	2	-	2	1
	adult ♀	-	1	-							
Nesasio solomonensis	adult ♀	1	-	-	-	1	-	1	-	1	-
PODARGIDAE											
Podargus ocellatus	adult ♀	-	1	-	-	1	-	1	-	1	-
APODIDAE											
Collocalia vanikorensis	adult ♀	-	-	1	1	-	1	-	-	1	-
Collocalia esculenta	adult ♂	-	-	1	-	1	-	1	-	1	-
	adult ♀	-	-	1	-	1	-	1	1	-	-
HEMIPROCNIDAE											
Hemiprocne mystacea	adult ♂	-	-	1	1	1	-	2	-	1	1
	adult ♀	1	-	-							
ALCEDINDAE											
Alcedo atthis	adult ♂	-	2	3	2	6	1	7	2	2	4
	adult ♀	-	1	3							
Ceyx lepidus	adult ♂	-	-	4	6	1	3	3	2	2	3
	adult ♀	1	2	-							
	imm ♀	-	-	1	-	1	-	1	1	-	-

Halcyon leucopygia	adult ♂	-	1	7	4	7	4	7	1	5	5
	adult ♀	1	2	-							
	imm ♂	-	-	1	1	-	1	-	-	1	-
Halcyon sancta	adult ♂	-	-	1	-	2	2	-	1	1	-
	adult ♀	-	-	1							
	imm ♂	-	-	2	1	2	2	-	2	1	-
	imm ♀	-	-	1							
Halcyon chloris	adult ♂	-	1	3	2	3	1	4	1	-	2
	adult ♀	1	-	-							
Halcyon saurophaga	adult ♂	-	1	1	2	2	2	2	1	1	2
	adult ♀	-	-	1							
CORACIDAE											
Eurystomus orientalis	imm ♂	-	1	-	-	2	-	2	-	1	-
	imm ♀	-	-	1							
BUCEROTIDAE											
Aceros plicatus	adult ♂	3	-	-	-	4	-	4	-	1	-
	adult ♀	1	-	-							
PITTIDAE											
Pitta anerythra	adult ♂	-	-	2	1	1	-	2	-	-	1
HIRUNDIDIDAE											
Hirundo tahitica	imm ♀	-	-	1	2	-	2	-	-	-	-
	imm ♂	-	-	1							
CAMPEPHAGIDAE											
Coracina lineata	adult ♂	-	1	3	4	6	3	7	2	7	-
	adult ♀	-	5	1							
	imm ♀	-	-	1	1	-	-	1	-	1	-
Coracina papuensis	adult ♂	-	-	3	1	4	-	5	2	1	-
	adult ♀	-	1	1							
	imm ♂	-	-	1	1	1	-	2	2	-	-
	imm ♀	-	-	1							
Coracina tenuirostris	adult ♂	-	-	1	-	4	1	3	1	2	-
	adult ♀	2	1	-							
	imm ♂	-	-	1	-	3	1	2	-	2	-
	imm ♀	-									
Coracina holopolia	adult ♂	-	-	4	-	5	1	4	2	2	1
	adult ♀	1	-	-							
	imm ♂	-	-	1	1	1	1	1	2	-	-
Coracina caledonica	adult ♂	-	1	1	-	3	1	2	-	1	1
	adult ♀	1	-	-							
RHIPIDURIDAE											
Rhipidura leucophrys	adult ♂	4	-	1	4	6	5	5	1	1	6
	adult ♀	3	2	-							
	imm ♂	-	-	1	1	2	1	2	1	-	2
	imm ♀	-	-	1							
Rhipidura rufifrons	adult ♂	1	1	-	-	2	-	2	-	-	1
	imm ♂	-	-	1	1	1	1	1	-	1	-
	imm ♀	-	-	1							
Rhipidura cockerelli	adult ♂	2	-	-	-	4	-	4	-	-	4
	adult ♀	1	1	-							
	imm ♀	-	-	2	-	2	-	2	-	-	2
MONARCHIDAE											
Monarcha castaneiventris	adult ♂	9	2	5	11	12	7	15	9	1	11
	adult ♀	1	1	4							

	imm ♂	-	-	4	1	4	-	5	-	-	5
	imm ♀	-	-	1							
Monarcha barbata	adult ♂	4	-	3	5	7	3	9	3	1	6
	adult ♀	2	-	4							
	imm ♂	-	1	1							
	imm ♀	-	-	1	-	3	-	3	-	1	2
Monarcha cinerascens	adult ♂	6	-	1	2	6	-	8	2	-	6
	adult ♀	1	-	-							
	imm ♂	-	-	6	3	11	1	13	2	2	10
	imm ♀	-	-	7							
Myiagra ferrocyanea	adult ♂	-	2	2	-	5	-	5	-	-	5
	adult ♀	-	-	1							
	imm ♂	-	-	1	1	-	1	-	1	-	-
PACHYCEPHALIDAE											
Pachycephala pectoralis	adult ♂	9	-	-	5	6	5	5	2	3	5
	adult ♀	2	-	-							
STURNIDAE											
Aplonis grandis	adult ♂	-	-	2	2	3	-	5	1	-	4
	adult ♀	-	2	3							
Aplonis metallica	adult ♂	-	-	5	-	11	-	11	-	-	11
	adult ♀	-	2	4							
	imm ♀	-	-	1	-	1	-	1	-	1	-
Aplonis cantoroides	adult ♂	1	-	-	1	2	1	2	-	2	1
	adult ♀	-	-	1							
	imm ♂	-	-	1	-	2	-	2	-	2	-
	imm ♀	-	-	1							
Mino dumontii	adult ♂	-	4	1	8	3	6	5	2	3	4
	adult ♀	-	2	3							
	adult ?	1 (not sexed)									
	imm ♀	-	-	1	-	1	-	1	-	1	-
CORVIDAE											
Corvus woodfordi	adult ♀	-	3	1	3	-	1	2	2	-	-
	imm ♂	-	-	1	2	-	2	-	2	-	-
	imm ♀	-	1		-						
MELIPHAGIDAE											
Myzomela lafargei	adult ♂	-	4	-	-	4	-	4	-	2	2
	imm ♀	-	-	1	-	1	-	1	-	-	-
NECTARINIIDAE											
Nectarinia jugularis	adult ♂	6	1	-	2	8	1	8	2	2	3
	adult ♀	-	2	1							
	imm ♂	-	-	2	-	5	2	3	1	-	3
	imm ♀	-	-	3							
DICAEIDAE											
Dicaeum aeneum	adult ♂	-	1	2	-	6	-	6	1	3	1
	adult ♀	-	-	2							
	imm ♂	-	-	5	-	10	-	10	2	1	7
	imm ♀	-	-	5							
ZOSTEROPIDAE											
Zosterops metcalfii	adult ♂	3	3	1	2	7	4	5	-	1	5
	adult ♀	-	2	-							
	imm ♂	-	-	2	4	2	1	5	-	2	1
	imm ♀	-	-	3							
	imm ?	1 (not sexed)									

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MEMBERSHIP

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Following the approval of the changes to the Rules of the Club at the Special General Meeting on 31st October 2000, Membership of the Club was extended to non-Members of the British Ornithologists' Union.

Subscription rates, as from 1 January 2001 are now:

BOU Members	£12.00	US$ 23.00
Non-BOU Members	£18.00	US$ 33.00

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The Membership List 2001 is available, free of charge to all requesting a copy, on application to the Hon. Secretary (address below). This list shows addresses (including E-mail addresses, where known), for all paid-up Members as at 31 December 2000. Members are requested to inform the Hon. Secretary of all corrections or changes, without delay, for despatch of the *Bulletin*. To offset the cost of postage, any contribution, or a stamped and addressed (A5-sized) envelope will be gratefully accepted.

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CORRESPONDENCE

Correspondence on membership, changes of address and all other matters should be addressed to:
Hon. Secretary, Cdr M.B. Casement, OBE, RN, Dene Cottage, West Harting, Petersfield, Hants. GU31 5PA, UK. (or E-mail: mbcasement@aol.com). For details of Club Meetings see inside front cover.

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Bulletin of the British Ornithologists' Club
ISSN 0007-1595
Edited by Professor Chris Feare
Volume 121, Number 2, pages 81 - 144

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Authors are invited to submit papers on topics relating to the broad themes of taxonomy and distribution of birds. Descriptions of new species of birds are especially welcome and will be given priority to ensure rapid publication, subject to successful passage through the normal peer review procedure; they may be accompanied by colour photographs or paintings. On submission, **two copies** of manuscripts, typed on one side of the paper, **double spaced** and with **wide margins**, should be sent to the Editor, Prof. Chris Feare, 2 North View Cottages, Grayswood Common, Haslemere, Surrey GU27 2DN, UK. **Note that electronic versions are not required on first submission.** Where appropriate half-tone photographs may be included and, where essential to illustrate important points, the Editor will consider the inclusion of colour plates (if possible, authors should obtain funding to support the inclusion of such colour plates).

When papers are accepted, revisions should be returned to the Editor as both a **hard copy**, as outlined above, and also on a 3.5" disk, as **Word or Wordperfect files** for PC. At this stage authors should send their email addresses, as completion of the editing process and proof reading will be undertaken electronically.

Fore instructions on style, see the inside rear cover of *Bulletin* 121 (1) or the BOC website:
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The *Bulletin* is despatched from the printer on publication and is sent by Surface Saver Postal Services to all European destinations outside the UK and by Air Saver Postal Services to destinations outside Europe. Those whose subscriptions have not been received by the beginning of a month of publication will have their copies despatched by surface mail, after their current subscription has been paid.

Printed on acid-free paper.

Published by the BRITISH ORNITHOLOGISTS' CLUB
Typeset by Alcedo Publishing of Colorado Springs, USA,
and printed by Crowes of Norwich, UK

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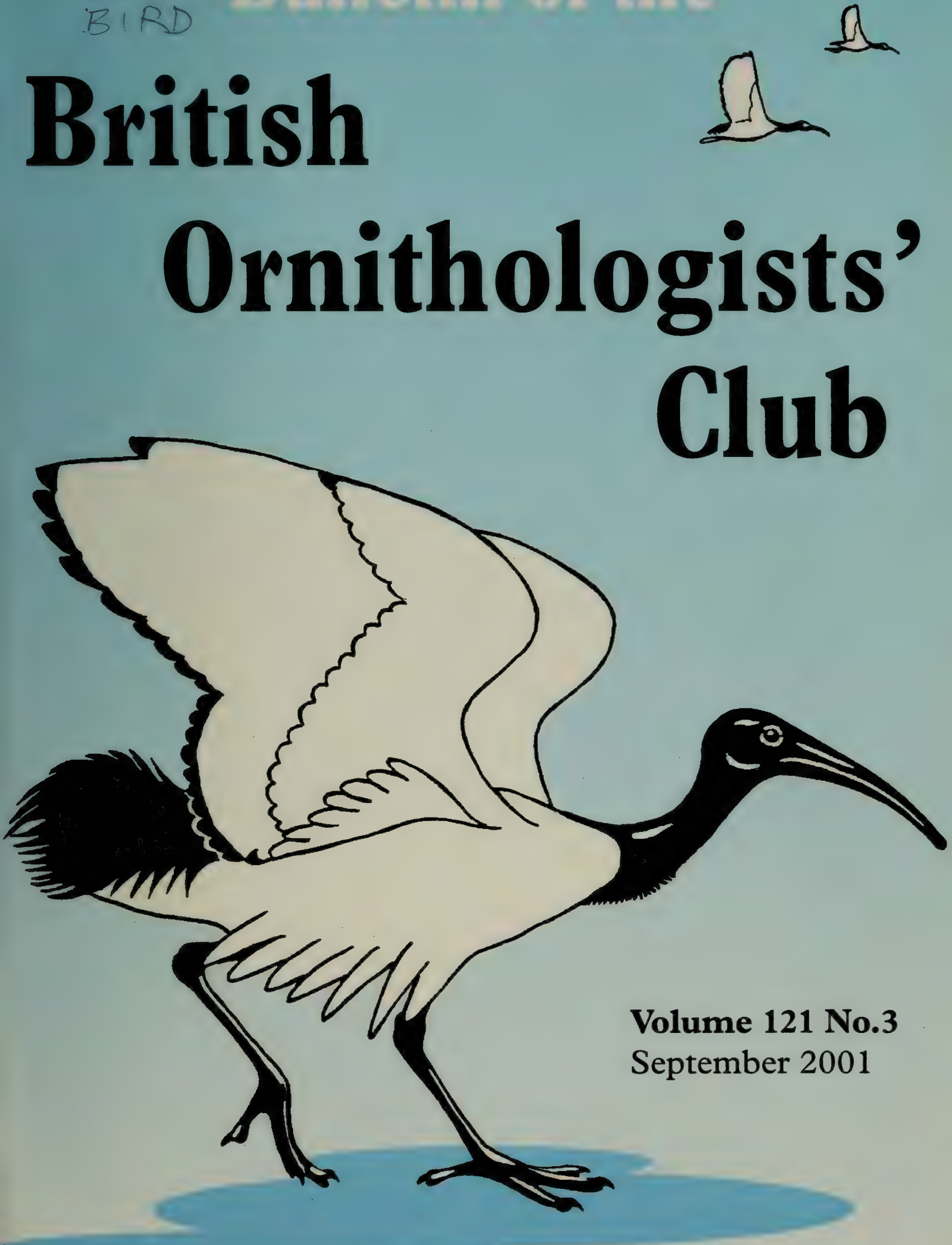
Bulletin of the
British Ornithologists' Club



Volume 121 No.3
September 2001

MEETINGS are held at **Imperial College**, South Kensington, London, SW7, usually in the **Sherfield Building**. The nearest Tube station is at South Kensington; a map of the area will be sent to members, on request. (Limited car parking facilities can be reserved, on prior application to the Hon. Secretary). See also website: **http://www.boc-online.org**

The cash bar is open from **6.15 pm**, and a buffet supper, of two courses followed by coffee, is served at **7.00 pm.** (A vegetarian menu can be arranged if ordered at the time of booking). Dinner charges are currently **£17.00.** Informal talks are given on completion, commencing at about 8.00 pm.

FORTHCOMING MEETINGS

25 September
Inspector Phil Cannings - *The work of a Police Wildlife Liaison Officer.*
Phil Cannings is an Officer serving with Bedfordshire Police with a deep personal interest in natural history - he is a BTO 'A' ringer and a Member of the BOU. He chairs a government sub-committee looking at wildlife legislation and will talk about the work of Police Liaison Officers, and developments in the legal and forensic field, with some examples of the use of forensic science in recent wildlife related cases.

Applications to the Hon. Secretary by ***11 September*** *please.*

6 November
Frank D. Steinheimer - *Undiscovered Cambodia - the endemics of the Cardamom Mountains.*
Frank was born in 1971 in Nuremberg, Germany, and studied zoology at Vienna University 1994-98, during which time he made field trips to foreign countries (Europe, Borneo, Thailand, Malaysia). He also gained experience working for the Bird Department of the Vienna Museum, also in Paris Museum. Since September 1998, Frank has been employed in the Bird Group of The Natural History Museum, Tring, working mainly with the wet anatomical and historically important collections (e.g. Darwin). In spring 2000 he took part in an expedition to west Cambodia.

Applications to the Hon. Secretary by ***23 October*** *please.*

4 December
Dr. John Sparks Ph.D.FZS, FLS - *BIRD QUEST - bringing birds to the TV screen.*
John has had a lifelong interest in birds, especially waders, wildfowl and seabirds, and has spent 35 years film-making for the BBC Natural History Unit, of which he was appointed Head of the department, in 1983. He has made a number of series (many with Tony Soper), including ***The Discovery of Animal Behaviour***, and as a Producer of Attenborough's ***Life on Earth.*** This filming work has taken him all over the world, and he has also been a tour leader or lecturer aboard several cruise liner and expedition ships to the Antarctic and elsewhere. John is a Scientific Fellow of the Zoological Society and Linnean Society and is greatly in demand as a lecturer.

Applications to the Hon. Secretary by ***20 November*** *please.*

Advance notice - Meetings programme for 2002.
Provisional bookings have been made for eight dinner meetings on the following Tuesdays:

15 January, 26 February, 16 March, 30 April (AGM), 25 June, 24 September, 5 November and 3 December.

Details of speakers will be published when known.

Overseas Members visiting Britain are especially welcome at these meetings, and the Hon. Secretary would be very pleased to hear from anyone who can offer to talk to the Club, giving as much advance notice as possible - please contact: Michael Casement, Dene Cottage, West Harting, Petersfield, Hants. GU31 5PA. UK. Tel/FAX:01730-825280 (or Email: mbcasement@aol.com).

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Vol. 121 No. 3 Published 17 September 2001

CLUB NOTES

The 901st meeting of the Club was held on Tuesday 1 May 2001 at 6.30pm, following the Annual General Meeting. 19 Members and 8 guests attended.

Members present were: Dr C.F. MANN (*Chairman*), Miss H. BAKER, I.R. BISHOP, Cdr M.B. CASEMENT RN, Dr. R.J. CHANDLER, D.J. FISHER, F.M. GAUNTLETT, The Rev. T.W. GLADWIN, D. GRIFFIN, K. HERON, S. LOWE, J.A. JOBLING, D.J. MONTIER, Mrs M.N. MULLER, M.L. PALING, R.C. PRICE, Dr R.P. PRŶS-JONES, P.G.W. SALAMAN, and P.J. SELLAR.

Guests attending were: Ms G. BONHAM, Mrs C.R. CASEMENT, Mrs M.H. GAUNTLETT, Mrs J.M. GLADWIN, Mrs J.A. JONES, Mrs M. MONTIER, Dr. P.C. RASMUSSEN, and M. WALTON.

After dinner, a series of short talks was given by Members on subjects of topical interest; the following is a brief synopsis of the main points presented:

Recent discoveries from Serranía de San Lucas, northern Colombia - Paul Salaman gave a brief summary of the highlights of his recent work, illustrated with high quality slides:

Serranía de San Lucas is an isolated and biologically-unknown mountain range, rising from sea level to 2,500m in the departments of Antioquia and Bolivar, northern Colombia. As part of the Colombian Evaluation of Biodiversity in the Andes (EBA) Project, ornithological surveys were conducted in the subtropical forest in March 2001. The expedition recorded over 200 bird species with 481 bird captures, which included several threatened and endemic species: White-mantled Barbet *Capito hypoleucus*, Sooty Ant-Tanager *Habia gutturalis*, and Saffron-headed Parrot *Pionopsitta pyrilia*. Three-striped Warbler *Basileuterus tristriatus* captures may relate to a new subspecies for science, whilst a Sharpbill *Oxyruncus cristatus* capture represents a new species (monotypic family) for Colombia.

The San Lucas massif is unprotected and has been heavily deforestated and colonised in recent years with gold mining activities and coca cultivation, thus greatly hampering potential conservation activities. The political situation in the region is also highly conflictive, with many areas land-mined. This complicates fieldwork, but perhaps this may be the only reason why any forest is remaining at all. Future studies will be conducted at higher elevations in an extensive tract of cloud forest.

A new owl in Sri-Lanka. David Fisher reported that a new species of owl had recently been discovered in Sri Lanka by Deepal Warakagoda, one of Sri Lanka's most active and knowledgeable field ornithologists.

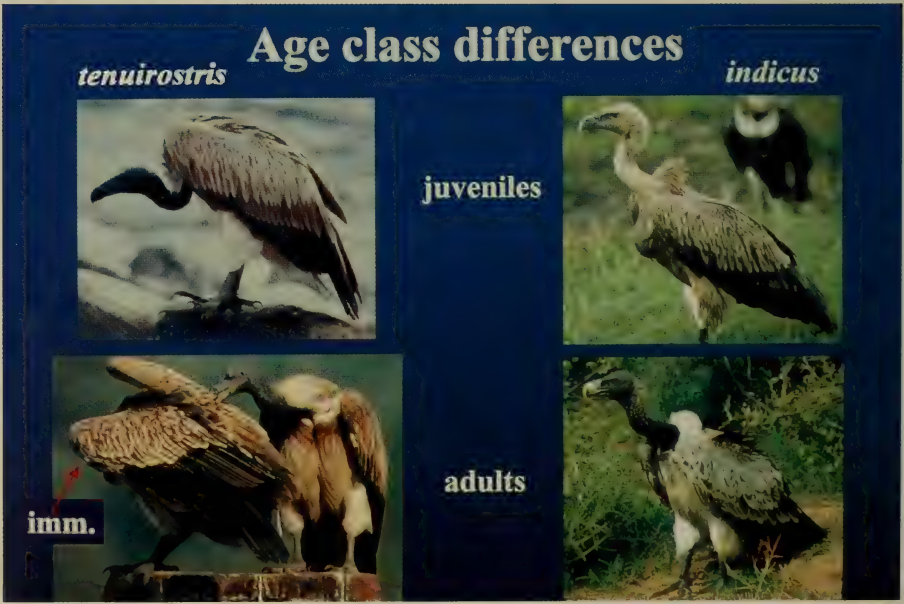
A Sunbird tour group, that included David, had seen the bird while with Deepal during a visit to the island in February 2001, and David had made some recordings of its vocalizations. Deepal had been hearing a mystery call for nearly six years and suspected it to be a new species to science. He had obtained recordings of the bird and sent them to Dr. Pamela Rasmussen, who had agreed that it was almost certainly an undescribed species. (By chance, Dr. Rasmussen was present as a guest at the meeting). Deepal finally confirmed that the calls were made by a small owl on 23 January 2001 when he saw the bird for the first time.

Shortly afterwards he returned with a colleague who obtained photographs, one of which was published in The Island newspaper on 25 February along with an announcement of the bird's discovery. David presented copies of the newspaper article for examination, and played the recordings that he had made of the new owl. He suggested that its quiet and infrequent call may have contributed to the species being overlooked for so long - quite remarkable on an island with such a long history of ornithological studies.

Deepal Warakagoda is about to start a research project to learn more about the new owl and to try to establish its exact status. To date he has only been able to locate three individuals. An announcement about the new owl is to appear shortly in the Bulletin of the Oriental Bird Club, *The Forktail,* and Deepal intends to describe the new species in due course in a paper to be co-authored with Dr. Rasmussen.

"Long-billed Vulture" ***Gyps indicus*****. Pamela Rasmussen** presented a short slide show on work she and Steven Parry have done on the taxonomic status of this. They found that the vulture taxa that have been treated as two subspecies under this species throughout the 20th Century are actually highly divergent and are probably not even sister species. The form occurring along the base of the Himalayas and into SE Asia, *tenuirostris,* has a great many characters (many of which are paedomorphic) that differ from adults of other species of *Gyps*, while the form from the Indian plains and peninsula, *indicus,* is a typical *Gyps* with only a few, minor novel characters.

In brief, *tenuirostris* and *indicus* have a differently shaped bill, head, and nares; very different distribution and type of feathering on the head and neck; different soft part colours; a clearly distinct flight silhouette; very distinct shape and distribution of contour feathers; different tarsal and pedal proportions and scutellation; and different nestling and juvenile plumages. Differences in egg structure and in nesting substrate are also evident. Osteological specimens were lacking but bones recovered from one skin specimen of each confirm differences observable in skins. DNA sequences recovered from skin samples by Rob Fleischer await study. Based on morphology, these are unquestionably good species that were long ago lumped without careful study due to the allopatric nature of their distributions. *Gyps tenuirostris* lacks obvious close relatives, while *Gyps indicus* is, based on morphology, probably most closely related to the very similar *Gyps africanus*. We suggest the common names "Slender-billed Vulture" and "Indian Vulture" for *tenuirostris* and *indicus*, respectively.



Photographs showing plumage differences between adult and juvenile *Gyps indicus* and *G. tenuirostris*.

Madagascar Plover *Charadrius thoracicus*. David Griffin showed some slides of this near-threatened species, taken on a visit to Madagascar in October 2000. One slide showed a bird in an unusual position - sitting with the full length of the tarsus on the ground, and tibia upright.

Richard Chandler gave a presentation to illustrate the **Plumages of the various taxa of Stilts *Himantopus himantopus*.**

Stilts *H. himantopus* are usually regarded as having five different races; at different times it has been suggested that some or all might be worthy of specific status. The forms with plumages distinguishable in the field are "Black-winged Stilt" *Himantopus h. himantopus* of Europe and Asia, "Black-necked Stilt" *H. h. mexicanus* of North America, "White-backed Stilt" *H. h. melanurus* of South America, "Pied Stilt" *H. h. leucocephalus* of Australasia and "Hawaiian Stilt" *H. h. knudseni*. Richard showed a series of colour transparencies (taken in the field) showing the range of plumages exhibited by *H. h. himantopus, H. h. mexicanus* and *H. h. leucocephalus*.

He concluded that, with the latter two taxa, once adult plumage was attained there appears to be very little variation in plumage, irrespective of age, breeding status or sex. In contrast, the nominate taxon shows a considerable range of different plumage patterns, particularly of head and neck, varying with age, breeding status and sex. These patterns are far more variable from bird to bird than with *H. h. mexicanus* and *H. h. leucocephalus*. Two different examples of *H. h. himantopus* were shown that had head and neck patterns recalling those of *H. h. knudseni*

Clive Mann described how a **Sunda Frogmouth *Batrachostomus cornutus*** nested in a garden in Brunei three times in just over a year despite a number of mishaps such as being washed under a garden tap, having its nest and egg pulled from its feet, and a hide or blind falling on it. At one point the adult, a male (the female was never seen) flew from the top of the nesting tree carrying its half-grown young in to a patch of secondary forest. Slides showed the remarkable effectiveness of camouflage in these birds.

Martin Gaunlett entertained the meeting with a spirited insight into the vagaries of **zoological nomenclature**, highlighting mistakes and anomalies of the present binominal system such as *Zenaida asiatica*, *Turnagra capensis*, and *Telophorus zeylonus*. He made a case for dispensing with this, replacing scientific epithets with English names. But his arguments ignored the utter confusion which the Linnaean system was originally designed to replace, and seemed to challenge the purpose of the current ICZN.

James Jobling comments that it has long been appreciated that scientific names, like our own surnames, are merely labels, and need not reflect the details of plumage, habits, or geographical distribution of any particular species.

What happened to the Bird Collection of the Museum of the Army Medical Department? Robert Prŷs-Jones said the beginnings of the natural history collection of the Army Medical Department (AMD) date from 1815, when James McGrigor became the AMD Director-General. In 1838, when Edward Burton produced "*A Catalogue of the Collection of Mammalia and Birds in the Museum of the Army Medical Department, at Fort Pitt, Chatham*", it comprised nearly 10,000 zoological specimens and included representatives of *c.* 1,000 taxa of birds. Among the latter were numbers of type specimens described by Burton and John Gould. Following the retirement of Andrew Smith as AMD Director-General in 1858, the natural history component of the museum entered into a period of prolonged decline, during which time it moved with the AMD to Netley, Hampshire, in the early 1860s and then back to Millbank, London, just after the turn of the century.

A move to produce an updated catalogue in the 1880s proved abortive, and by 1908 the AMD was disposing of a variety of natural history material to the British Museum (Natural History), although no birds appear to have been included. Subsequently, the AMD museum suffered serious flooding in 1928 and was virtually gutted by air attack in 1940. It seems likely that its important bird collection either decayed or was destroyed, but definitive evidence appears lacking and it is possible some part could survive.

If any reader can throw light on the collection's fate, please contact Robert Prŷs-Jones, Bird Group, The Natural History Museum, Akeman St, Tring, Herts HP23 6AP, U.K.; e-mail: R.Prys-Jones@nhm.ac.uk".

ANNUAL GENERAL MEETING

The Annual General Meeting of the British Ornithologists' Club was held in the Sherfield Building, Imperial College, London SW7 on Tuesday 1 May 2001 at 6 p.m. with The Reverend T.W. Gladwin in the Chair.

Apologies had been received from Professor Chris Feare (*Hon. Editor*), Francis Stone (*Hon. Archivist*), Captain Sir Thomas Barlow Bt., Amberley Moore, Bob Scott, Paul Salaman and Nigel Redman. 17 Members were present.

The Minutes of the Annual General Meeting held on 2 May 2000, which had been published (*Bull. Brit. Orn. Cl.* 120: 144-145), were approved and signed by the Chairman.

Chairman's report. Against the background of the review he had presented last year (see *Bull. Brit. Orn. Cl.* 120: 138-41), the year 2000 was essentially one of consolidation and new opportunities for the Club to increase its contribution to ornithology.

The millennium year saw a major milestone in the Club's history. The adoption of the new Rules opened the membership to non-members of the British Ornithologists' Union (the Union), whilst continuing to recognise the Club's historic links which it continues to enjoy with the Union. The widening of the voting rights should further secure the Club's objectives.

The Club has agreed in principle to become co-publishers of the Union's *Checklist* series. In essence, there will be an equal partnership in which the Union will edit, and the Club will partly finance, the publications. At a personal level he believed there are other areas in which mutual co-operation between the Club and the Union would result in significant benefits to ornithology, as well as to our respective organisations.

The Club's net assets increased to nearly £323,000 in 2000 and it is right that these should be partly applied for the benefit of ornithology in this way.

The *Bulletin* continues to improve and the expected savings resulting from changes to the arrangements for its production and printing were achieved. Some years ago, and in order to distinguish it from the Union, the Club decided that its logo should take the form of a flying, rather than a standing ibis, and the Club's tie was redesigned accordingly. The new cover of the *Bulletin*, which now also depicts ibis in flight, seems to have gained majority approval.

The Club has established an excellent Website (http://www.boc.online,org), and the *Hon. Secretary* can be contacted via e-mail (mbcasement@aol.com).

In accordance with the system of rotation he, also David Griffin, and Nigel Redman, will be standing down from the Committee this year. As a result, next year's Committee will show at least four changes. In addition, Dr Robert Prŷs-Jones had recently advised that, due to pressures of work, he is unable to continue as Chairman of the Publications Sub-Committee.

After all that has been achieved over the past few years he suggested this is a good time for significant changes to be made. In addition, James Jobling succeeded John Farnsworth as Publications Officer from 1st January 2001, although the smooth handover of these duties had already been progressed in stages throughout the year.

Hitherto, the Publications Sub-Committee has been able to conduct much of its required business relatively informally. With the increasing publications commitments this Sub-Committee will now be meeting regularly, and all its business minuted for communication to, and approval by, the Committee.

He had enjoyed serving on the Club's Committee for the last eleven years, and wished especially to thank all who have worked so hard for the Club during his four year term as

Chairman. In respect of this last year, he recorded his thanks to Michael Casement (*Hon. Secretary*), David Montier (*Hon. Treasurer*), Dr Robert Prŷs-Jones (*Vice-Chairman*, and *Chairman* of the Publications Sub-Committee), members of the Committee and Publications Sub-Committee, Professor Chris Feare (*Hon. Editor* of the *Bulletin*), and Mary Muller for preparing the indexes to the *Bulletin*; the *Hon. Publications Officers*, John Farnsworth (to 31st December) and James Jobling (from 1st January); Francis Stone (*Hon. Archivist*), Paul Salaman for setting up the Club's Website and agreeing to become its manager; the trustees of the Herbert Stevens Trust Fund; and Imperial College for the provision of facilities for Club meetings and dinners.

The Annual Report of the Committee for 2000. The *Hon. Secretary* pointed out that this was now an integral part of the Annual Accounts, copies of which were before all Members present, and would be published in the June issue of *Bulletin* 121 (2). He drew attention to some of the highlights of this report, and called for any questions. There were none.

Concerning **Membership**, he warned that he expected there may be a net loss at year-end. Despite formal reminders, the high number of resignations and unpaid subscriptions currently still outstanding was disappointing; when these non-payers are removed, in accordance with Rule (24), there will be a significant drop in membership. Although the change in Rules, the re-design of the *Bulletin* and the wide publicity on the website should all facilitate an increase in applications to join, the initial response to these measures suggested that the number of new members was unlikely to balance this shortfall.

The Annual Accounts for 2000. The *Hon. Treasurer* presented the accounts for the year ended 31 December 2000, and drew attention to the salient features, which were detailed in the paragraphs on finance in the Trustees' Report of Activities and Review of the Year *Bulletin* 121: 85-86.

The adoption of the Accounts was proposed by Mrs Mary Muller, seconded by David Griffin, and approved by all present.

The *Bulletin*. In the absence of Chris Feare, Michael Casement said that the Hon. Editor had asked him to state that he had nothing significant to add to the text of the Annual Report; he confirmed that 61 papers had been received, of which 37 had been accepted, and the steady flow of papers had continued with another two received in the last month. The Editor thanked all those who had completed the reader's survey questionnaire, but regretted that he had been too pre-occupied yet to produce his analysis of the results.

Election of Officers and Committee. The Chairman said that the Committee's proposals had been published in *Bull. B.O.C.* 121 (1): 8:- Dr C.F. Mann to be elected to succeed him, as Chairman; Mrs M.N. Muller vice Mr D. Griffin; Mr P.G.W. Salaman vice Mr N.J. Redman, and Professor R.A. Cheke vice Dr C.F. Mann (on assuming the Chairmanship). There being no other nominations to the offices of Secretary and Treasurer, Commander M.B. Casement was re-elected *Hon. Secretary*, and D.J. Montier re-elected as *Hon. Treasurer*. These changes were proposed by Revd. T.W. Gladwin, seconded by Mr. J.A. Jobling, and approved *nem. con.*

Following the resignation of Robert Prŷs-Jones as Chairman of the Publications Sub-Committee, and as Vice-Chairman of the Club, the vacancy of Vice-Chairmanship would be filled, as decided by the Committee, at the next opportunity.

James Jobling proposed a vote thanks to Tom Gladwin for all his help over the past eleven years, which was enthusiastically supported by all present.

No other items for discussion had been notified in accordance with Rule (12), and the meeting closed at 6.32 p.m.

BOOKS RECEIVED

Marshall, J.T. 2001. *The Gray-cheeked Thrush, Catharus minimus, and its New England Subspecies, Bicknell's Thrush, Catharus minimus bicknelli.* Pp. 136, 2 colour plates, two black and white photographs, sonograms and 5 maps. Publications of the Nuttall Ornithologicual Club, No. 28, published by National Museum of Natural History, Smithsonian Institution. No price given. ISBN 1-877973-40-8.

This is a delightful, though possibly long-winded, treatise on whether *Catharus bicknelli* is a full species or a clinal subspecies of the Grey-cheeked Thrush *C. minimus*. The book, which the author refers to as a report, re-examines the material, mostly consisting of museum specimens (all listed in an appendix) and vocal patterns and concludes that G. J. Wallace who, as far back as 1939, considered it a subspecies of Grey-cheeked, got it right. In addition he goes on to catalogue the destruction of the nesting habitat since Wallace's day.

Like the late A R Phillips before him, and in style not that dissimilar but less provocative or fanciful, Marshall leaves no stone unturned in his quest for what he sees as a wrong needing to be put right - *bicknelli* is a species too far. Whilst re-examination of the material is a very laudable aim, it is clear from the outset that Marshall has a fairly good idea of the outcome and as such lacks a certain objectivity. The lengthy prognosis of the late Henri Ouellet, with whom Marshall discussed *Catharus* taxonomy (but clearly came to different conclusions), is regrettably and rather unceremoniously dismissed.

The basis of his argument is that major subspecies are readily recognisable from the diverse set of plumage and vocal characteristics they display, and in this he cites such species as Slate-coloured Junco *Junco hyemalis*. Minor differences are considered clinal. However, there is no mention of modern species concepts (most of the references cited are pre-1998) and the increasing tendency towards creating new species by splitting existing ones is treated largely with disdain.

This is an interesting book, though one likely to attract only the most avid student of thrush taxonomy. This is a pity as there should always be a place for books like this, written from the heart and not for any commercial imperative.

Peter Clement

BirdLife International 2000. *Threatened birds of the world.* Pp 864; 1186 Globally Threatened species accounts, distribution maps, illustrations. 727 Near Threatened species accounts. References. Lynx Edicions and BirdLife International. Barcelona and Cambridge. ISBN 0 94688 39 6 (UK), 84 87334 28 8 (Spain). £70.

The disturbing but very clearly explained thrust of this joint BirdLife International and Lynx Edicions publication is the potential extinction of more than a hundred bird species in the short-term (perhaps just 10 years) and potentially over a thousand species in the longer term.

The introduction to the threatened species accounts discusses extinction risk and opportunities for action, documentation and assessment of extinction risk and categorisation of threat status. Each of the 1186 species thus determined as Globally Threatened and 3 as Conservation Dependent is allocated a half page A4 text but with concise summaries on degree of threat, identification, range and population, ecology, threats, conservation, targets, references, a distribution map and full colour illustration. A further 77 pages are devoted to 727 Near Threatened species and other lower risk categories (Least Concern, Data Deficient, Not Evaluated, Extinct). 69 pages then summarise all threat categories for all species discussed in the main text, as listed by territory. References include full citations for the summary references given in the threatened species accounts. An appendix lists all the artists used and the original sources for their illustrations.

This is an essential publication for all concerned with the future welfare of bird species whether in terms of protection, habitat conservation, the environment, field research and project funding.

S. J. Farnsworth

Zalles, J. I. & Bildstein, K. L., (eds.) 2000. *Raptor Watch: A global directory of raptor migration sites.* Pp. xviii + 419. £37.00. Cambridge, UK: BirdLife International; and Kempton, PA, USA: Hawk Mountain Sanctuary (BirdLife Conservation Series No. 9)

The migration of raptors at watchpoints throughout the world has fascinated bird-watchers, scientists and conservationists for years The contents of this book are fascinating and impressive; and they will form a background source of knowledge to build upon and develop in future years. Over 800 "raptor biologists" contributed to the 10 year project that identified 388 "raptor-migration watchsites or hot spots". Introductory chapters deal with the "conservation opportunity", a global analysis and regional introductions, before the book's meat of 316 pages packed with site information. European migration watchers will be familiar with Falsterbo, Sweden and the Bosphorus, Turkey, whilst in North America Hawk Mountain, Pennsylvania will be a well known name. Amongst the detailed descriptions of the 388 sites, however, are some less familiar names and one is left wondering as to the criteria used to justify inclusion. How is it that Sweden has only one watchsite identified (not surprisingly Falsterbo) whilst a similar number of sites for the United Kingdom identifies (surprisingly?) Calf of Man.

This first edition can only be looked upon as a start to a programme that has still some way to go. The gaps appear large, but they have been identified. North America and Europe/Middle East are well recorded, but there are still many blanks in Africa (particularly central and west) and Asia from the Tien Shen mountains through to the Indian subcontinent. The world's raptor migration enthusiasts need have no fear that it has all been done — there is plenty out there still to be discovered, but don't try to discover it without first consulting this magnificent directory. Hawk Mountain Sanctuary and BirdLife International are to be congratulated on the production of a volume packed with so much essential information.

Bob Scott

Skerrett, A. & Bullock, I. 2001. *Birds of Seychelles.* 320 pp., 53 colour plates by Tony Disley, line illustrations in text by Mark Andrews and Tony Disley. Christopher Helm/A & C Black, London. ISBN0-7136-3973-3 (pbk). £25.

This excellent new Helm guide is the first guide to the birds of Seychelles to appear since 1974. Since then, major advances in knowledge of endemic landbirds, breeding seabirds and migrant visitors to the Seychelles have been made. This book illustrates and describes the 242 species that have been accepted by the Seychelles Bird Records Committee or who's status in the islands is uncertain, but in terms of the comprehensive treatment of the 66 breeding species this guide is more of an up-to-date handbook. For these species, descriptions of the birds are followed by accounts of behaviour, breeding biology, range, threats and conservation. Migrants receive detailed description together with diagnostic features of possible confusion species. Brief introductory sections describe the island groups within the Seychelles, their climate and important bird-watching sites, the work of the Seychelles Bird Records Committee and a check-list of species currently accepted, and a summary of the origins of the Seychelles avifauna. The illustrations are generally superb; I particularly like the illustration of an adult Sooty Tern showing turquoise underparts – this effect is produced by reflection from the sea, but causes much confusion among tourists and has not, to my knowledge, been depicted before. To ornithologists with interests in endemic birds and breeding seabirds and their conservation, and to birdwatchers planning to visit the islands, this book is an essential and attractive companion. Visitors should prepare themselves for the unexpected, however — many migrants, from Eurasia, the Afrotropics and the Oriental region find their way there, and the colonisation of some islands by Black-crowned Night Herons during the last decade illustrates the dynamic nature of the avifauna.

Chris Feare

A new species of wagtail from the lower Mekong basin

by J. W. Duckworth, Per Alström, P. Davidson, T. D. Evans, C. M. Poole, Tan Setha & R. J. Timmins

Received 12 March 2001

On 13 December 1972, Kitti Thonglongya collected two black-and-white wagtails from Ubon Ratchathani Province, Thailand, now held in the Thailand Institute of Scientific and Technological Research, Bangkok, Thailand (TISTR). These formed the basis for Lekagul & Round's (1991) illustration of '*Motacilla alba alboides*'. Wagtails broadly fitting this picture of '*M. a. alboides*' were found locally in south Laos in February 1993, but generated minimal interest because they (apparently) fitted a recognised taxon, as portrayed in an excellent field guide. Intensive bird surveys across Laos up to 2000 (Duckworth 1996, Thewlis *et al.* 1996, 1998, Davidson *et al.* 1997, Evans & Timmins 1998, Duckworth *et al.* 1998a, 1999, in press, Round 1998, Showler *et al.* 1998, Evans *et al.* 2000, Evans in press, WCS Lao Program unpublished data) recorded the same wagtail only in the south of the country. In 1997, these wagtails were suspected to breed in far southern Laos. This would be a major extension of known range; *M. a. alboides*, from the Himalayas and central China, breeds no closer than northern Vietnam (Vaurie *et al.* 1960) and north Laos (Duckworth *et al.* 1998a, 1999; R. J. Tizard *in litt.* 2001). The first intensive bird survey of riverine habitat in Cambodia, in 1998, found this wagtail ('*M. a. alboides*') breeding widely across the Mekong tributaries of the north-east of the country (Timmins & Men Soriyun 1998). In February 1999, F. Goes, N. J. van Zalinge & CMP travelled fresh parts of the north-east, and again found it breeding widely, as did N. J. van Zalinge, JWD & CMP in February 2000. Robson's (2000) field guide to South-east Asian birds illustrates accurately *M. a. alboides*, and shows it to be a very different bird from the breeding wagtail of southern Indochina. Examination of specimens of all possible confusion taxa in TISTR, the Natural History Museum, Tring, UK (BMNH), and the American Museum of Natural History, New York, USA (AMNH) during 2000 confirmed the distinctness of what we previously thought to be '*M. a. alboides*'.

On 9–16 February 2001, PA, JWD, PD, CMP & TS visited the Mekong, San and Kong rivers in the vicinity (upstream) of Stung Treng, Stung Treng Province, northeast Cambodia, observed well over 100 individuals of the unknown wagtail in adult and second calendar-year plumages, and collected 3 adult males, 3 adult females and 2 first-adult (second calendar-year) females (see Appendix 1). Juveniles were observed and photographed around Kampi, Kratie province, on 14-15 April 2001 by PD. Collected birds were kept in alcohol until they were prepared as specimens; one remains in alcohol. Six specimens were prepared with the right wing detached and spread, so that details of the wings can be more easily studied. PA compared 6 of these specimens, plus photographs of the other two, directly with specimens of possible confusion taxa, in particular African Pied Wagtail *Motacilla a. aguimp* (4 on loan from BMNH) and *M. aguimp vidua* (11 on loan from BMNH; 11 in the Swedish Museum of Natural History, Stockholm, Sweden [NRM]; and one in the Museum of Evolution, Uppsala University, Uppsala, Sweden), having previously studied large series of all possible confusion taxa in e.g. BMNH and AMNH. JWD and TDE compared specimens of the unknown wagtail with large series of specimens of possible confusion taxa in BMNH. The following measurements were taken on all individuals caught: wing length (maximum chord) and tail length (ruler inserted under the undertail-coverts) to the nearest 0.5 mm; bill length (to skull), tarsus length (to the last complete scutum before the toes), and hind-claw length (to the thin skin at the base) to the nearest 0.1 mm. Wing formula was described with primaries (P) numbered descendantly and secondaries (S) numbered ascendantly. Total length (bill tip to tail tip) was measured to the nearest mm on 4 specimens by placing the specimens on their backs on a ruler. All measurements were taken by PA on the day of collection, except total length, which was taken by Anders Hansson just before the specimens were prepared. In the description, rectrix is abbreviated R, and the rectrices are numbered from inner to outer; greater covert is abbreviated GC, and they are numbered ascendantly.

In addition to the birds caught, 10 were filmed using a Sony DCR-TR7100E camcorder through a Swarovski AT 80 HD telescope, and 4 were photographed. The video footage and photographs were compared with photographs of possible confusion taxa, in particular *M. aguimp vidua* (n=15).

Songs and calls of many birds were heard, and songs of at least 12 males and calls of *c.* 20 individuals were tape-recorded using a Sony DAT recorder TCD-D8 and a Telinga Pro parabolic reflector/microphone. Sonograms were made of 'simple' songs from 10 individuals, 'complex' songs from 4 individuals, and calls from 13 individuals, using the software Canary 1.2.4 (Mitchell *et al.* 1995). The tape recordings and sonograms were compared with possible confusion taxa, in particular *M. aguimp vidua* (n=11) assembled from various sources.

In the following text, topography, age, moult and voice terminology follow Alström *et al.* (in press). *First-adult* refers to the immature plumage obtained through the post-juvenile moult when there is no pre-breeding moult (and accordingly no difference between first-winter and first-summer); *first-'winter'* and *first-'summer'* are used for *M. aguimp* to indicate that these plumages are not so strongly related to the seasons as in Eurasian wagtails; *first-year* refers collectively to juvenile, first-'winter' and first-'summer', or juvenile and first-adult. In the voice descriptions, an *element* is a discrete, unbroken unit in a sonogram; a *note* is a discrete sound which, however, does not necessarily consist of a single element; a *phrase* refers to a series of two or more different notes that is given twice (rarely more times) in succession; a *rattle* is a multiple, fast repetition of either a single very short element or a phrase of very short elements; and a *strophe* is an uninterrupted series of notes that is separated from other strophes by silent *pauses*.

Original descriptions and/or type specimens of most of the available names listed in Sharpe (1885) and all those in Vaurie *et al.* (1960) were studied, and literature was searched for taxa described subsequently.

The south Indochinese wagtail (Plate 1, 2) is a distinctive, hitherto unnamed, taxon, for which we propose the name:

Mekong Wagtail *Motacilla samveasnae* sp. nov.

Holotype

The Natural History Museum, Tring, UK, BMNH reg. no. 2001.8.1, field no. JWDKH09, adult male, San river ('Se San channel' on original label), Stung Treng province, Cambodia, 13°32'28"N, 106°04'12"E, *c.* 50 m a.s.l., 13 February 2001. Collected by PA and JWD, prepared by Anders Hansson (Plate 2).

Diagnosis

Adult and first-adult: Plumage lacks green or yellow. Distinguished from White-browed Wagtail *Motacilla maderaspatensis* by all-white throat and white patch on side of neck. Told from all taxa in the White Wagtail *M. alba* complex by blackish central stripe on the forehead (extending to the base of the bill, and including the bases of the feathers) and all-blackish ear-coverts, from all except *M. a. subpersonata*, *M. a. ocularis* and *M. a. lugens* also by blackish lores, and from *M. a. alboides* and *M. a. personata* also by white sides of neck. Told from Japanese Wagtail *M. grandis* by all-white throat, white patch on side of neck and blackish central stripe on the forehead. Further separated from *M. maderaspatensis*, many *M. grandis* and all taxa in the *M. alba* complex (except some first-year *lugens*) by, from above, dark remiges with all-white bases to the outer and inner webs of the secondaries and inner primaries, forming a white bar (most pronounced on inner primaries in first-adult female). Closely resembles African Pied Wagtail *M. a. aguimp* and *M. aguimp vidua*; most safely distinguished by the pattern of the remiges, in particular the more extensive white outer edges to P1–P5 (see below).

Juvenile: Plumage mostly brownish-grey and white. Differs from *M. maderaspatensis*, *M. grandis*, *M. alba* ssp. and *M. aguimp* by combination of pale throat with dark malar stripes, dark ear-coverts and a dark loral stripe (can be restricted to proximal lores), and rather extensively dark-centred median and greater coverts.

Description of holotype

Plumage: Forehead (to base of bill, and including basal parts of feathers), crown and nape blackish (very faint brown tinge to central and rear crown and nape). Long, broad white supercilium from base of bill to slightly beyond rear of ear-coverts; supercilium so broad that blackish on forehead reduced to narrow stripe, hardly visible from side view, even in the hand. Lores show tapering, 'triangular' blackish stripe. Ear-coverts blackish, with thin white crescent (broken eye-ring) below eye. Broad blackish, slightly U-shaped, breast-band, which reaches onto lower part of otherwise white throat; border between blackish and white on throat slightly mottled and not clear-cut. Breast-band connected by broad blackish 'spur' to lower rear end of ear-coverts and by thinner blackish 'spur' to junction of nape/mantle/scapulars, thereby isolating prominent white patch on sides of neck. Colour of crown and nape

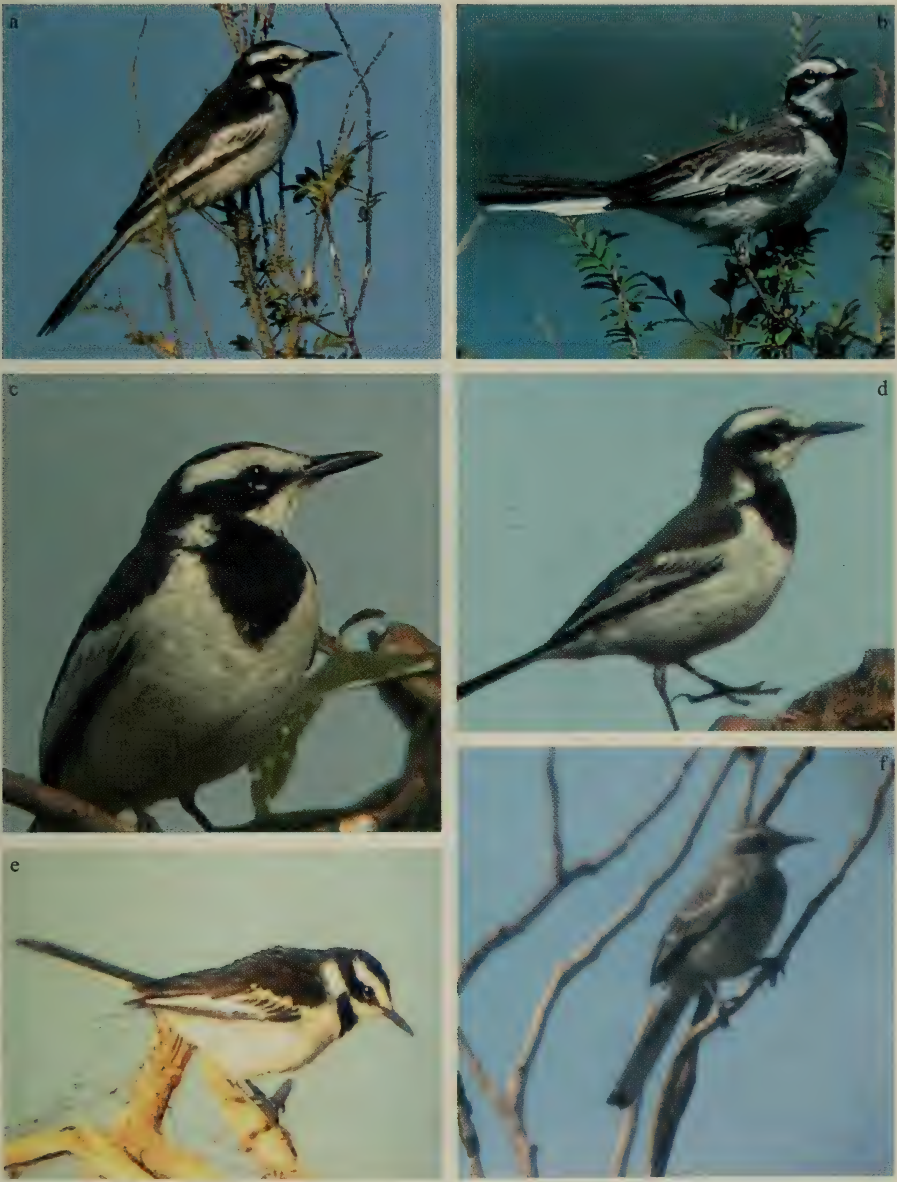


Plate 1. *Motacilla samveasnae*. (**a**, **c**, **e**) different adult (?) males; (**b**, **d**) different adult females, the one in b paired to the male in a; (**f**) juvenile. The white patch on the side of the neck appears unusually large in e. (a–e) from Stung Treng Province, Cambodia, mid-February 2001, (f) from Kratie province, Cambodia, mid-April 2001. Photographs: Pete Davidson (a, b, f) and Per Alström (c, d, e; from video).

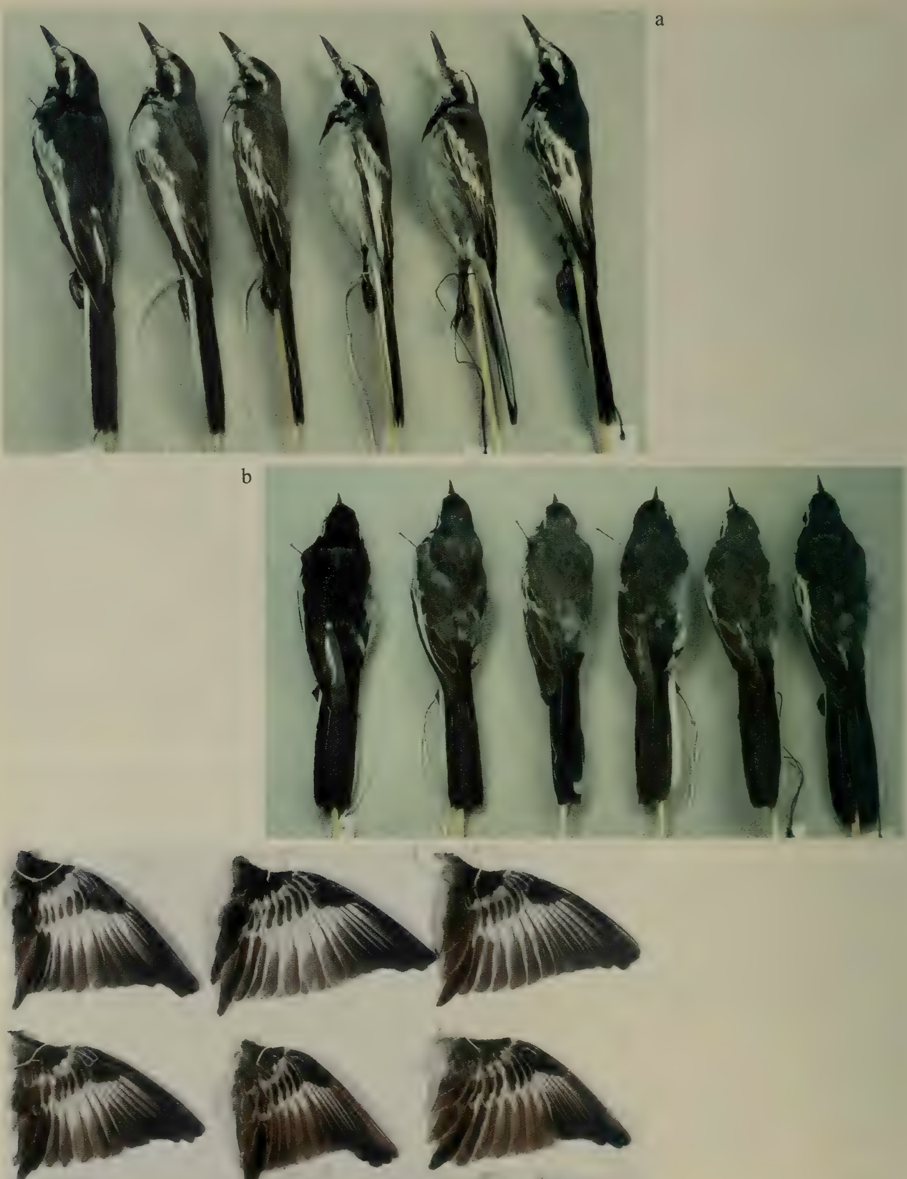


Plate 2. Six of the specimens in the type series. (**a**, **b**) from left to right: Adult male BMNH 2001.8.1 (holotype), adult female BMNH 2001.8.3, first-adult female NRM 20016100, adult female BMNH 2001.8.2, first-adult female BMNH 2001.8.4 and adult male BMNH 2001.8.5. (**c**) top row: BMNH 2001.8.5, BMNH 2001.8.1, BMNH 2001.8.2; bottom row: BMNH 2001.8.3, BMNH 2001.8.4, NRM 20016100. Photographs: Göran Frisk (a, b) and Lars-Erik Jönsson (c).

merges with blackish-brown mantle and scapulars. Back, rump and proximal median uppertail-coverts similar to mantle, although slightly tinged greyish. Proximal lateral uppertail-coverts blackish with broad whitish outer edges and greyish-white inner edges. Distal lateral uppertail-coverts tinged more brownish. Breast below blackish breast-band, flanks, belly and undertail-coverts white, slightly tinged greyish (especially on flanks, but here largely concealed by folded wings).

Lesser coverts blackish with brown tinge. Median coverts: outers mainly white with brownish-tinged blackish bases; progressively more extensively blackish, especially on inner webs, towards body; innermost feather mainly blackish with white tip and edges, broadest on outer web. GC1 blackish-brown with *c.* 2 mm white tip to outer and inner webs, *c.* 1 mm white edge to outer web, and white edge to inner web *c.* 1 mm wide distally and *c.* 2.5 mm wide basally; GC2–GC7 show progressively more white on inner (except on GC6–GC7) and especially outer webs, outer web being mainly white with only indistinct grey-brown smudges on GC6–GC7; GC8–GC10 largely blackish-brown (presumably with quite broad white edge to outer web of GC8 when fresh, but now almost completely worn off) (Plate 2). Tertials blackish-brown, with very indistinct, narrow paler edges; longest tertial has white basally on outer web (concealed by greater coverts). Primary coverts blackish with brown tinge, with narrow whitish edges basally to outer webs, and prominent whitish patches basally on inner webs (extending more than halfway towards tips). Alula feathers blackish, with progressively broader white fringes from largest to smallest feather. Carpal covert blackish with *c.* 1 mm white fringe. P1 white basally with dark brown shaft and *c.* 25 mm-long brown-tinged blackish distal portion, latter with progressively narrower white edges to both webs (extending very narrowly to tip of feather on outer web and to *c.* 18 mm from tip of feather on inner web). P2–P4 show slightly shorter white outer and inner edges and progressively more extensive dark distal portions; on P5–P8 dark distal portion extends narrowly along shaft to base on inner web, and white base to outer web and edge to the same progressively become less extensive (white base entirely covered by primary coverts on P7–P8); P9 dark on outer web with very narrow white edge throughout length (widest at base); P10 (minute) all white. S1 white basally with brown-tinged blackish shaft and *c.* 28 mm long distal portion; broad white edge to outer web, progressively narrower towards tip and very narrowly surrounds tip and narrowly reaches up on inner web (broadens towards base). S2–S4 show progressively more white basally and on edges and tips, whereas amount of white on S5–S6 decreases progressively. White bases to remiges form a broad white band on upperwing when spread, broadest on central–outer secondaries and inner primaries (Plate 2). On the folded wing, the white outer edges to the secondaries form a uniform white bar along the wing (while the white outer edges to the inner primaries are concealed) (Plate 2). Underwing-coverts white with mainly concealed grey bases to the primary and secondary coverts; underwing looks largely white with dark tips to the remiges. R1–R4 blackish with a faint brown tinge (left R4 shows a thin white stripe, *c.* 7 mm long, basally on inner web). R5–R6 white (including shaft) with blackish base to outer web and extensively blackish along edge of inner web. Feathers on tibia whitish with blackish centres.

Condition of plumage: Most of plumage worn, especially median coverts, inner greater coverts, tertials and rectrices. A few scattered feathers on the forehead, crown (mainly sides) and nape have been renewed later than the rest of the plumage. Due to wear, it is not possible to judge e.g. how broad the pale edges to the tertials and inner greater coverts were when they were fresh; whether the primary coverts had distinct pale edges along their entire lengths when they were fresh; or to what extent the brown tinge above is the result of wear and bleaching. The colour contrast between the forehead and sides of the crown, on the one hand, and the mantle, on the other hand, may be due to the fact that the former parts have fresher feathers than the latter parts. The distal uppertail-coverts are browner than the proximal uppertail-coverts, presumably because the former are generally more exposed than the latter. It seems likely that most of the dark feathers were at least marginally blacker when fresh, as is generally the case in wagtails (Alström *et al.* in press).

Bare parts: Bill black. Iris dark brown. Very thin orbital ring dark grey. Tarsus, toes and claws greyish-black; soles rather pale grey with faint buffish tinge.

Measurements: Total length 175; wing 86.5; tail 78.0; bill 19.3; tarsus 20.7; hind claw 6.4. Wing formula: WP=P7–P8, P9 –2, P6 –1.5, P5 –8, P4 –14, P3 –18, P2 –21, P1 –23; emarginations to P6–P8; lacks distinct notches.

Paratypes

Plumage: All 7 paratypes (see Appendix 1), except adult male AMNH skin 833352, were directly compared with the holotype. Adult male AMNH skin 833352 and adult female BMNH A/2001.6.1 were not directly compared with each other, nor with any other paratype, although colour photographs taken at collection were compared with the rest of the type series. Accordingly, exact differences in colour hues between these two specimens and the others are unclear.

Adult male BMNH 2001.8.5 is slightly paler and browner above than the holotype (Plate 2), and judging from photographs and field notes, adult male AMNH skin 833352 seems to be even marginally paler (mantle and scapulars described as dark greyish-brown in the field). The four females compared directly resemble each other in the colouration above (Plate 2), as apparently (from photographs and field notes) does adult female BMNH A/2001.6.1. Females are clearly paler and greyer on the upperparts than the males, with more contrast between the grey-brown mantle/scapulars and blackish ear-coverts and forehead/crown (at least anterior parts and sides of crown blackish) (Plates 2). In females, newly moulted feathers on the upperparts (see below) are greyer, less brown-tinged, than worn feathers.

The width of the blackish breast-band varies individually (Plate 2). The holotype has the most black. On most individuals it extends onto the lowermost part of the throat, but at least in BMNH 2001.8.4 the entire throat is white.

The wing pattern varies individually, with age, and to a lesser extent sex (Plate 2). Lesser coverts are blackish with a brown tinge in both males (as in the holotype), but they are slightly paler and tinged more grey-brown in the females. The centrally placed median coverts of BMNH 2001.8.5 show less dark on the inner webs (reduced to an isolated dusky spot) than on any other specimen, which are all rather similar to each other and to the holotype. In adult male AMNH skin 833352, GC3–GC7 show more white, especially on the outer webs (all-white outer web on GC 6). Adult male BMNH 2001.8.5 shows even more white on the greater coverts than AMNH skin 833352 (e.g., GC5–GC7 have all-white outer webs). Pattern of the greater coverts varies only slightly in the females. They show less white basally on the outer webs, especially, and inner webs than the males. All except one have extensively dark outer webs to GC1–GC7, with just a little whitish basally (well concealed by the median coverts); in BMNH A/2001.6.1, GC6 is nearly all white on the outer web, with an indistinct dusky smudge.

The patterns of the alula feathers, carpal covert and primary coverts are rather similar in all adults. The two first-adult females, however, have narrower and less distinct whitish tips and outer edges to the smallest and central alula feathers, BMNH 2001.8.4 also to the carpal covert. In contrast to the adults, the two first-adult females lack a distinct whitish edge to the inner web of the central alula feather, BMNH 2001.8.4 also lacks a distinct whitish edge to the inner web of the carpal covert. The primary coverts of the two first-adult females are browner, more worn, more pointed and have more frayed tips than in the adults, and they lack the adults' very thin whitish edges to the bases of the outer webs of the outer feathers and their distinct whitish patch along the edge basally of the inner webs.

Compared with the holotype, adult male BMNH 2001.8.5 shows longer and broader white outer edge to P9; all-white outer web basally to P8 (equal to tip of longest primary covert); all-white outer web basally to P7 (reaching 2 mm beyond tip of longest primary covert); and white outer web basally to P6 reaches 3 mm beyond tip of longest primary covert. Adult female BMNH 2001.8.2 and adult male AMNH skin 833352 resemble the holotype on P6–P9, whereas adult female BMNH 2001.8.3 and the two first-adult females lack white on the outer web of P6 beyond the tip of the corresponding primary covert. The two first-adult females also show marginally less white on the outer webs of P1–P5, compared with the holotype and the other adults.

The pattern of the secondaries is basically similar in all adults, although in no paratype are the white edges to the distal portion of the inner webs quite so distinct as in the holotype. AMNH skin 833352, BMNH 2001.8.3 and BMNH 2001.8.5 have slightly narrower white outer edges to the secondaries than the holotype and the other two adult paratypes, possibly because of greater wearing. In both first-adult females, the dark on the outer webs of the secondaries is so extensive that very little or no white is visible on the bases of the outer webs beyond the tips of the greater coverts, resulting in less distinct white bar on the upper surface of the secondaries on the spread wing than in adults (Plate 2). Moreover, the whitish edges and tips to the outer webs are narrow and indistinct in the two first-adults (except on two newer feathers in NRM 20016100), giving the impression of mainly dark secondaries on the folded wing in the first-adult females, unlike in all of the adults, in which they form a white bar (Plate 2). On the inner webs, the extent of white is rather similar in the first-adults and the adults, although the dark distal portions have insignificant whitish tips and edges in the first-adults.

Bare parts: No variation noted.

Measurements: See Tables 1 and 2 for summaries.

Etymology

The specific name honours the late Sam Veasna (pronounced 'Sam Veeshna'), one of Cambodia's leading ornithologists and conservationists, who died, tragically young, on 3 December 1999 of malaria, contracted during fieldwork in northern Cambodia. The English name indicates that it is the only wagtail breeding in the lower Mekong catchment, to which on current knowledge it is restricted. Moreover, it draws attention to the major, yet desperately fragile, geographic feature of this bird's very restricted range.

Sexing, ageing and moult

Sexing

All specimens were sexed tentatively, based on colouration of upperparts, behaviour immediately prior to capture, and cloacal protuberance/brood patch. Sex was later confirmed internally (except, yet, for AMNH skin 833352 and BMNH A/2001.6.1).

Females are distinctly paler and greyer on the crown, nape, mantle, scapulars, back, rump and lesser coverts than males, and show more pronounced contrast between these parts and the blackish lores, ear-coverts and breast-band than males (Plates 1–2). Sexing was possible in the field, often even when birds were seen singly, but plumage differences are slight and experience is needed to use them. Moreover, there may be some overlap in the colouration of the upperparts, especially between first-adult male and adult female, as is the case in other black-and-white wagtails (Alström *et al.* in press). In our specimens, females are more extensively dark on the greater coverts than males, but we suspect that a larger sample would reveal considerable overlap between the sexes in this respect.

Males are larger than females (Table 1), the sample showing no overlap. Males showed a prominent cloacal protuberance, but no trace of a brood patch, while females showed less of a cloacal protuberance and a more swollen abdomen next to the cloaca; two birds (BMNH 2001.8.3 and 2001.8.2) had begun to develop a brood patch. Only birds matching males in upperparts colouration were definitely heard singing 'simple' song; the only possible record of a female in song concerned a bird giving 'complex' song once, that appeared to match a female in colour above; seen under poor conditions, it may in fact have been a first-adult male.

Ageing

Juvenile plumage (Plate 1) is easily distinguished from subsequent plumages by the relatively pale brownish-grey upperparts, less distinct head pattern, and diffuse dark grey or brownish-grey patch on the central breast. The median and greater coverts show more extensive dark centres and more diffuse off-white or buffish outer edges than in adult (but detailed pattern unknown).

TABLE 1

Measurements of *M. samveasnae* and *M. aguimp*. Numbers in brackets refer to, in sequence, mean, standard deviation and sample size.

	Male	Female
M.samveasnae		
Wing	86.5–87.0 (86.7; 0.29; 3)	80.0–83.0 (81.4; 1.19; 5)
Tail	78.0–81.5 (79.5; 1.80; 3)	75.0–78.0 (76.6; 1.25; 4)
Bill	19.2–19.6 (19.4; 0.21; 3)	19.0–19.2 (19.1; 0.08; 5)
Tarsus	20.2–20.7 (20.5; 0.25; 3)	18.6–20.4 (19.8; 0.74; 5)
Hind-claw	6.3–6.4 (6.4; 0.06; 3)	5.9–6.4 (6.1; 0.19; 5)
M. a. vidua (adult and first-year) Egypt, Sudan and Ethiopia (Cramp 1988)		
	Male	Female
Wing	93.0–102.0 (96.4; 3.07; 10)	88.0–96.0 (91.3; 2.39; 11)
Tail	86.0–92.0 (90.0; 3.52; 10)	83.0–93.0 (87.1; 3.50; 11)
Bill	17.6–19.1 (18.3; 0.48; 10)	16.9–18.5 (17.9; 0.75; 11)
Tarsus	23.9–26.4 (25.2; 0.90; 9)	23.2–25.6 (24.2; 0.94; 11)
M. a. vidua (adult and first-year) Kenya and Uganda (Alström *et al.* in press)		
	Male	Female
Wing	86–101 (93.0; 3.64; 43)	84–92 (88.8; 2.08; 29)
M. a. aguimp (adult) South Africa (Alström *et al.* in press)		
	Male	Female
Wing	93.0–99.0 (95.9; 2.41; 7)	86.0–89.0 (87.5; 1.29; 4)

Two female specimens (NRM 20016100 and BMNH 2001.8.4) are taken as first-adult, because, compared with other specimens, they have browner and more-worn remiges, primary coverts and alula, and slightly differently shaped and textured primary coverts (Plate 2). These features are universally useful for ageing in Eurasian Motacillidae (Alström *et al.* in press). Moreover, they show less white on these feathers than the presumed adults, as is the case also in *M. aguimp* (remiges only), *M. grandis* and *M. alba lugens* (Alström *et al.* in press). All the male specimens are similar to the adult females in these respects, and are therefore considered to be adult. Since we have not seen any definite first-adult males, we do not know whether or not they differ from adult males in the wing pattern.

Moult

This species either lacks or has just a very limited pre-breeding moult, as in *M. maderaspatensis* and *M. grandis*, but unlike *M. aguimp* (at least *vidua*) and all subspecies of *M. alba* (Alström *et al.* in press). All the specimens are worn. Males have either no or just a few scattered newer feathers, on the forehead, crown (mainly sides) and nape. The females have a few scattered newer feathers on the forehead, especially, crown (mainly sides), nape, mantle and scapulars. In addition, NRM 20016100 has new R1–R2 (right R2 still growing) and right S1 and S6, and the carpal covert in the right wing appears newer than the greater coverts (Plate 2). All birds studied closely in the field showed overall worn plumage, without any fresh secondary coverts or tertials (except for two females, one adult and one first-adult based on the appearance of the secondaries, which had the longest tertial in one wing new).

The two first-adults do not differ from adults in pattern and/or degree of wear of any median and greater coverts or tertials (Plate 2). We therefore assume that all of these feathers had been renewed during the post-juvenile moult (as is usually the case in *M. maderaspatensis* and *M. grandis*; in *M. aguimp* and the different taxa in the *M. alba* complex the number of median and greater coverts and tertials replaced during the post-juvenile moult is variable, ranging from none to all; Alström *et al*. in press).

Morphological comparisons with other species

Adult and first-adult

Motacilla samveasnae is easily distinguished from all Eurasian wagtail taxa by head pattern, with blackish or dark greyish lores, ear-coverts and central stripe on forehead (to bill, and including bases of feathers), long, broad white supercilium, and white throat and patch on sides of neck. All taxa in the *M. alba* complex have white forehead, and none has all dark ear-coverts; in addition, all except three taxa have white lores, two taxa have black sides of the neck, and most taxa have black throat in summer plumage. Two aberrant individuals of *M. alba* show dark feathering running down the forehead to the bill: *Motacilla frontata* Swinhoe, BMNH 1898.10.20.436 (which we consider most likely to be an aberrant *M. alba leucopsis*), and *M. alba yarrellii* BMNH registration no. 1965-M-8789. However, both these have white bases to the anterior dark feathers on the midline of the forehead (as is typical in all subspecies of *M. alba*), and moreover the dark area remains broad to its anterior edge, not forming a fine line as in *M. samveasnae*. *M. maderaspatensis* has the forehead, lores, ear-coverts and supercilium patterned as in *M. samveasnae*, but has black throat and sides of neck. *M. grandis* is similar to *M. samveasnae* in the pattern of the lores and ear-coverts, but has mainly white forehead (dark does not reach the bill, except occasionally as a dotted dark line), slightly narrower and shorter supercilium, mostly black throat and black sides of neck. *M. samveasnae* also differs from *M. maderaspatensis*, many *M. grandis* and all taxa in the *M. alba* complex except some *lugens* by the, from above, white bases to the outer and inner webs of the secondaries and inner primaries (visible as a white band on the spread wing; in first-adult female *M. samveasnae*, mainly on the inner primaries). *M. maderaspatensis* can have extensively white inner webs and usually has broad white edges to the outer webs, but never shows all-white bases to the outer webs; in all taxa in the *M. alba* complex except some first-year *lugens*, the white bases to the remiges are so restricted that no white band is created; adult male *M. a. lugens* and *M. grandis* show white primaries with dark tips and all-white or mostly white secondaries, and adult females of these species and first adult males and females of the latter species have white remiges with dark tips to the primaries and variably prominent dark tips to the secondaries.

TABLE 2

Wing formulae of *M. samveasnae* (except BMNH 2001.8.2, which was too worn to measure; P6 unmeasurable on two further birds) and *M. aguimp vidua* (the latter from Alström *et al.* in press). Distances from wing tip (mm). E stands for emargination; number in brackets is the mean.

M. samveasnae					
P4	P5	P6E	P7E	P8E	P9
11.0–16.0 (13.7)	6.5–9.0 (7.9)	1.0–1.5 (1.2)	0	0	1.5–2.5 (2.1)
M. a. vidua (7 males, 4 females, adult)					
P4	P5	P6E	P7E	P8E	P9
13.0–19.0 (15.2)	6.5–14.0 (8.7)	0.5–2.0 (1.2)	0–1.0 (0.3)	0–1.5 (0.1)	1.0–3.0 (1.8)

M. samveasnae is very similar to *M. aguimp* but is on average smaller, with proportionately longer bill (Table 1; sexes should be compared separately due to dimorphism in size). Unlike *M. aguimp*, the blackish breast-band of *M. samveasnae* usually reaches onto the lower throat. Accordingly, the white throat patch is generally smaller in *M. samveasnae* than in *M. aguimp*, and the blackish 'spur' that extends from the breast-band to the ear-coverts generally appears broader and more 'continuous' with the breast-band than in *M. aguimp*. Moreover, the upper border to the blackish breast-band is frequently ragged and blotched in *M. samveasnae*, whereas in *M. aguimp* it is usually rather clear-cut. On average, the white patch on the side of the neck is smaller and reaches less high up behind the ear-coverts, and accordingly looks less elongated, in *M. samveasnae* than in *M. aguimp*; however, the appearance of the white patch varies considerably both individually and depending of the posture of the bird. The upperparts average paler in *M. samveasnae* than in *M. aguimp* (comparison controlled for sex, age and plumage wear). Male *M. samveasnae* are generally more similar to adult female 'summer' *M. aguimp*, and we suspect that *M. samveasnae* is never so jet black above as are most adult males and some adult female *M. aguimp* in 'summer' plumage. However, we have only seen *M. samveasnae* in worn plumage. Conversely, adult female 'summer' *M. aguimp* is only rarely so pale above as most female *M. samveasnae* (though in 'winter' plumage, adult female *M. aguimp* can be rather greyish above; Alström *et al.* in press).

The greater coverts show more dark on the outer webs in *M. samveasnae* than in *M. aguimp*, though there is overlap (Fig. 1). Although the greater coverts of *M. samveasnae* frequently appear mostly white in the field, more commonly they show prominent dark centres. In contrast, the greater coverts of *M. aguimp* usually look all or mostly white in the field (though concealed blackish patterns on inner webs often shine through as pale grey shadows; Alström *et al.* in press). In *M. aguimp*, juvenile greater coverts have on average more extensive dark on the outer webs than post-juvenile ones, and are thus more like those of *M. samveasnae* than are adult feathers; at least some juvenile outer greater coverts are frequently retained in first-'winter' and first-'summer' *M. aguimp* (Alström *et al.* in press).

The pattern of the remiges, especially primaries, differs significantly, although rather subtly, between *M. samveasnae* and *M. aguimp* (Fig. 2, Table 3). In *M. samveasnae* the white on the outer webs of P1–P5 extends far towards the tips of the feathers as a progressively narrower white edge (Fig. 2, Table 3); also P6 shows a prominent white outer edge in 5 of the 8 specimens (indistinct in one adult female and both first-adult females), and P7–P9 show very narrow whitish outer edges. In contrast, in *M. aguimp* the white on the outer webs of the primaries only reaches slightly or not at all beyond where the dark portion ends basally (Fig. 2, Table 3). Patterns on inner webs of primaries differ between the species in a similar though less pronounced way (Fig. 2, Table 3).

On P6–P8, *M. samveasnae* shows on average considerably less white on the outer webs basally than *M. aguimp* (Table 4); in *M. samveasnae* the bases to the primaries on the folded wing appear dark with, at the most, small white markings (and very narrow white edges), whereas *M. aguimp* usually shows a rather prominent white patch basally on the primaries on the folded wing (most pronounced in adult male, least so in first-year female; Alström *et al*. in press). P10 (very small and difficult to locate; concealed by primary covert No. 9) is all white or shows a thin dark streak along the centre of the feather in *M. samveasnae*, while it is blackish with a narrow white outer edge and tip in *M. aguimp*.

On S1–S5 (S1–S4 in two birds) the dark portion on the outer web tapers rather gradually towards the base in *M. samveasnae*, while in *M. aguimp* the dark portion on the outer web of the secondaries usually ends rather bluntly at the base (Fig. 2); on S6 (and S5 in two *M. samveasnae*) the pattern is similar in both species. Occasionally, first-year *M. aguimp* resembles *M. samveasnae* in this respect, but no specimen of *M. samveasnae* shows a pattern on S1–S3 reminiscent of typical *M. aguimp*. On the inner webs of the secondaries, the dark portion tapers rather gradually towards the base in *M. samveasnae*, while it ends more abruptly in *M. aguimp*; in *M. samveasnae*, but not in *M. aguimp*, the white on the base of the secondaries sometimes reaches to the feather-tip along the edge (Fig. 2, Table 3).

All specimens of *M. samveasnae* show narrow whitish outer edges *basally* to the primary coverts (perhaps also distally when fresh), whereas *M. aguimp* usually lacks whitish edges to the primary coverts, or shows thin whitish outer edges *distally*. The inner webs of the primary coverts show more prominent white bases in *M. samveasnae* than in *M. aguimp*. In adult *M. samveasnae* the central alula feather shows distinct white tip and edges to the outer and inner webs (widest basally on the inner web). In contrast, in adult *M. aguimp* the white on the central alula feather is often very insignificant and is usually mainly or entirely restricted to the distal portion of the outer web and tip to the inner web (can be lacking on tip of inner web). In first-year birds of both species, the patterns are more similar to each other (having indistinct pale tips and lacking white edges to inner webs), although it seems that *M. samveasnae* may show more distinct outer edge than *M. aguimp* (although the sample of the former is too small for conclusive evaluation).

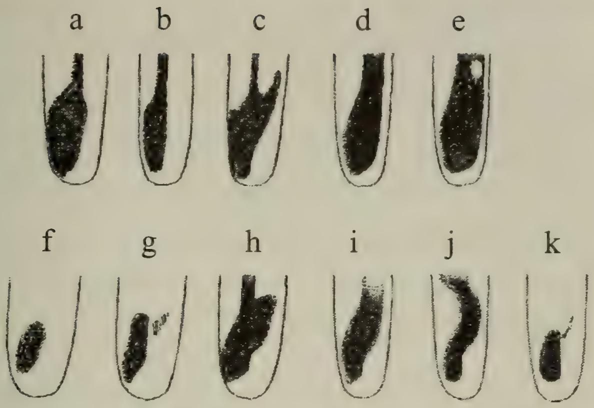


Figure 1. Top row: Right GC1 of *Motacilla aguimp* (**a–c**) and *M. samveasnae* (**d–e**). Bottom row: Right GC4 of *M. aguimp* (f–h) and *M. samveasnae* (**i–k**). For each species, the commonest type is shown to the left and the rarest to the right. Drawing: Per Alström.

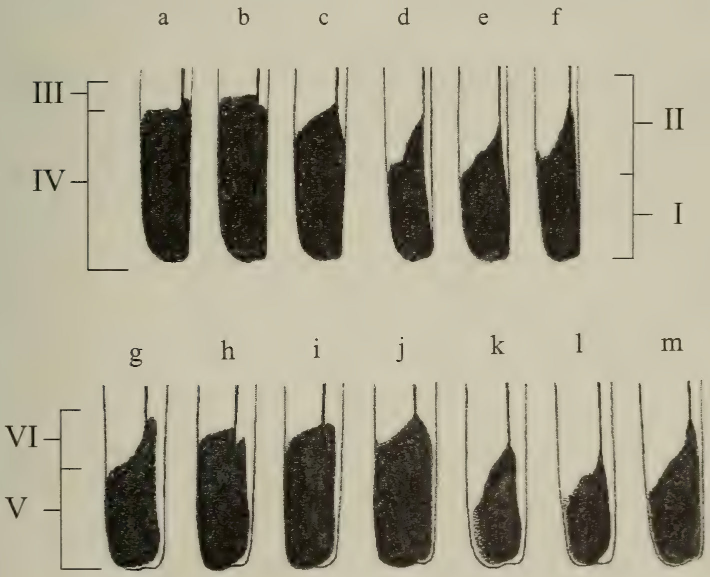


Figure 2. Top row: Right P3 of *Motacilla aguimp* (**a–c**) and *M. samveasnae* (**d–f**). Bottom row: Right S3 of *M. aguimp* (**g–j**) and *M. samveasnae* (**k–m**). The holotype of *M. samveasnae* is illustrated in d and k; f and m show first-adult female *M. samveasnae* (NRM 20016100); and j has only been seen in first-year *M. aguimp*. Numbers show where the measurements in Table 3 were taken. Drawing: Per Alström.

Both R5 and R6 show a dark edge to the inner webs in our specimens of *M. samveasnae*. In *M. aguimp vidua* R6 is usually all- or nearly all white, and occasionally R5 is all white or shows a much reduced dark edge (25%; n=24); in *M. a. aguimp*, R5–R6 are more similar in pattern to *M. samveasnae*. In *M. samveasnae* R4 is all blackish, while in *M. aguimp* R4 sometimes shows white outer web basally and/or a white tip. In the present specimens of *M. samveasnae*, R1 is entirely blackish, although it is not possible to say whether it had had white edges when fresh. *M. aguimp* frequently shows rather wide white edges to R1 when fresh.

In all except two of the *M. samveasnae* that we observed, the tertials were worn and showed very indistinct pale edges. However, we are unable to say whether fresh tertials have such prominent white edges as in *M. aguimp*.

Juvenile

M. samveasnae most closely resembles juveniles of some *M. alba* subspecies: *alba*, *yarrellii*, *baicalensis* and *subpersonata*. However, it differs from these by showing a dark loral stripe (at least on proximal part of lores; distal lores can be whitish), darker and more uniform ear-coverts and more prominent supercilium. None of the juvenile *M. samveasnae* observed showed a prominent dark 'brow' over the supercilium that is often shown by juveniles of these *M. alba* subspecies. *M. samveasnae* differs from

TABLE 3

Amount of white on P4 and S3. See Fig. 2 for explanation of I–VI. *M. samveasnae* n=2 adult males, 2 adult females, 2 1st-year females; *M. aguimp aguimp* n=2 1st-year males, 2 1st-year females; *M. aguimp vidua* n=3 adult males, 4 adult females, 3 1st-year males. Numbers refer to range and, in brackets, mean, standard deviation and sample size.

	P4				S3	
	I	II	III	IV	V	VI
M. samveasnae	8–15 (11.2; 2.2; 6)	16–22 (19.8; 2.7; 6)	11–16 (14.2; 1.9; 6)	21–23 (22.0; 0.63; 6)	0–15 (11.7; 5.8; 6)	10–26 (15.2; 5.8; 6)
M. aguimp	21–35 (26.4; 3.3; 14)	3–9 (6.1; 2.0; 14)	4–14 (7.7; 2.8; 13)	26–31 (28.5; 1.56; 13)	22–28 (24.9; 1.6; 13)	2–10 (6.1; 3.0; 13)

TABLE 4

Amount of white visible on the outer web beyond the tip of the longest primary covert (No. 8) on the outer primaries in *M. samveasnae* and *M. aguimp vidua* (measured along the shaft, accordingly excluding narrow white outer edges). Measurements of *M. aguimp* from Alström *et al.* (in press). Numbers refer to range and, in brackets, mean and sample size.

	M. samveasnae			*M. aguimp vidua*			
	Adult male	Adult female	1st-year female	Adult male	Adult female	1st-year male	1st-year female
P8	0	0	0	0–3.5 (1.4; 7)	0–4 (1.0; 4)	0–4.5 (1.1; 7)	0–2.5 (0.8; 3)
P7	0–2 (1.0; 2)	0	0	0–7 (4.5; 14)	1–6 (3.6; 14)	0–7 (2.6; 21)	0–5 (2.2; 11)
P6	1–3 (2.0; 2)	0–1 (0.5; 2)	0	5–10.5 (8.0; 14)	3–9 (6.2; 14)	1–9 (4.5; 21)	1–7.5 (4.0; 11)

M. alba ocularis and *M. a. lugens* by darker and more uniform ear-coverts and more prominent supercilium, from the latter also by more extensive dark centres to especially the median coverts (mostly white with thin dark shaft-streaks in *lugens*); from *M. a. leucopsis* by overall much darker sides of the head and distinct dark malar stripes (entire sides of head and throat pale in *leucopsis*); and from *M. a. alboides* and *M. a. personata* by dark lores, pale sides of the neck, lack of a pale area below the eye, and dark malar stripes; *personata* and *alboides* often show rather uniformly dark throat. *M. samveasnae* can be distingusihed from *M. maderaspatensis* and *M. grandis* by paler throat with dark malar stripes and pale sides of the neck; from the latter also by more prominent supercilium and extensive dark centres to the median and greater coverts (all-white median coverts and largely white greater coverts in *M. grandis*). *M. samveasnae* can be told from *M. aguimp* by the distinct dark malar stripes and more extensively dark centres to the greater and, especially, median coverts (latter mostly white with thin dark shaft-streaks in *M. aguimp*).

Vocalizations

M. samveasnae has two main types of song, a 'simple' song, which is the commonest type, and a 'complex' song, which is given rather sporadically; these two song types grade into each other. Both types of song are probably used in territory defence and mate attraction. Males usually responded more strongly to playback of 'complex' song than to 'simple' song. 'Complex' song was also heard several times when males were agitated, e.g. when Large-billed Crows *Corvus macrorhynchos* flew over the wagtail's territory. It was once heard from a bird that appeared to be a female on plumage.

The 'simple' song consists of short, quick strophes of mostly rather high-pitched, thin, often slightly harsh, notes; the strophes are interspersed by pauses of *c.* 4–6 sec., sometimes longer (Fig. 3, Table 5). Usually, all elements (notes) in a certain strophe differ from each other, and phrases and rattles are rare. The same strophe is often repeated several times (exceptionally, one bird gave the same strophe 11 times in succession, the length of the recording). However, most males appear to have a rather large repertoire of strophes (e.g. 39% unique strophes and another 20% more or less modified strophes, e.g. combinations of strophes, out of 54 strophes in one male; however, most individuals are less variable). The 'simple' song is most similar to the 'simple' song of *M. grandis* (Fig. 3), but usually contains fewer harsh notes

TABLE 5

Measurements of various aspects of 'simple' song of *M. samveasnae*.

Duration of strophes (s)	No. elements/ strophe	Bottom frequency (kHz)	Top frequency (kHz)	Frequency range of strophes (kHz)
0.3–1.5 (mean 0.59; 66 str.; 5 inds)	1–12 (mean 5.3; 68 unique el.; 5 inds)	1.8–2.8 (mean 2.31; 66 str.; 5 inds)	6.4–7.9 (mean 7.28; 66 str.; 5 inds)	4.2–6.2 (mean 4.95; 66 str.; 5 inds)

than that species. 'Simple' song of *M. maderaspatensis* (Fig. 3) contains a much higher proportion of drawn-out, harsh, rolling notes than the 'simple' song of *M. samveasnae*, and phrases are common. 'Simple' song of *M. aguimp* differs clearly from 'simple' song of *M. samveasnae* in having more frequent phrases and rattles and usually a fuller, clearer voice. The 'advertising call' of *M. alba* ssp. (which appears to have the same function as 'simple' song in the other black-and-white wagtails; see Alström *et al.* in press) usually consists of a single note that is repeated many times, and is accordingly much simpler than 'simple' song of *M. samveasnae*.

The 'complex' song of *M. samveasnae* (Fig. 4) is a drawn-out (3–18 s in our recordings), rapid ramble of notes, many which are similar to those of 'simple' song, but also includes a high proportion of harsh, frequently markedly drawn-out, notes and drawn-out buzzing sounds; harmonics are common. This type of song may recall the song of Eurasian Siskin *Carduelis spinus* (especially the drawn-out buzzing, wheezing notes). It bears little resemblance to any other wagtail song, but there are some similarities to the 'complex' song of *M. grandis* (Fig. 4), although it is more

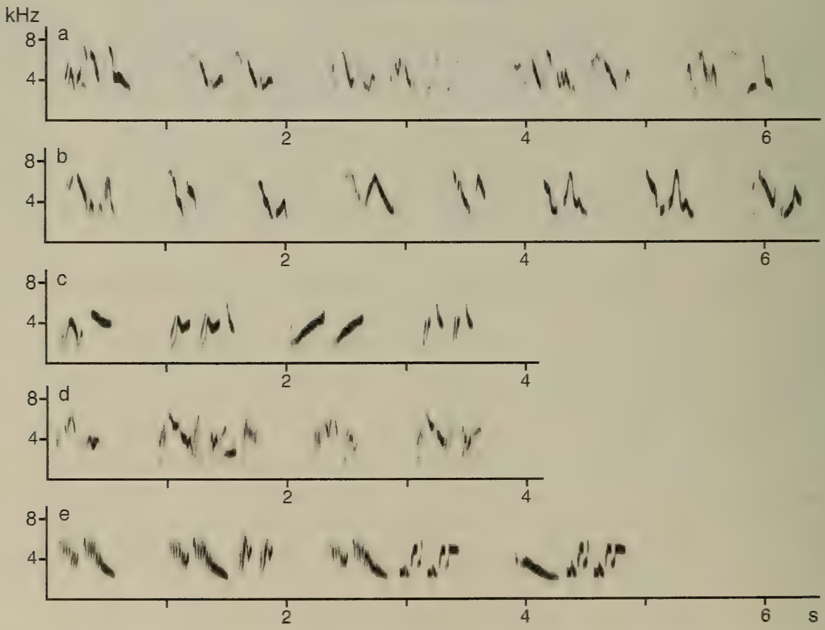


Figure 3. 'Simple songs'. (**a**, **b**) *Motacilla samveasnae*. Five and eight, respectively, strophes of two different individuals, Stung Treng Province, Cambodia, mid-February 2001. Tape recordings by Per Alström. (**c**) *M. aguimp vidua*. Four strophes, Zimbabwe, October. Tape recording by Guy Gibbon. (**d**) *M. grandis*. Four strophes, Japan. Tape recording by T. Kabaya. (**e**) *M. maderaspatensis*. Four strophes, Rajasthan, India, April. Tape recording by Per Alström. Sonograms in c, d and e from Alström *et al.* (in press). Pauses between strophes have been artificially shortened in all sonograms.

varied and complex, with more harmonics and fewer phrases. The drawn-out harsh notes gives it some resemblance to the 'complex' song of *M. maderaspatensis* which, however, is quite different, e.g. in being more 'organised' due to a large proportion of phrases. The 'complex' song of *M. aguimp* (Fig. 4) is quite different, having more phrases, fewer harsh notes and harmonics, usually more varied speed, and a generally richer and clearer voice. Excited song of *M. alba* ssp. is somewhat reminiscent of the 'complex' song of *M. samveasnae*, especially in having complex harmonics.

The flight call of *M. samveasnae* (Fig. 5) is a short, sharp, harsh *dzeer*, which is sometimes doubled or, when excited, repeated several times. Slightly softer and lower-pitched versions are also given, both when perched and in flight (when undisturbed). The flight call recalls flight calls of Water Pipit *Anthus spinoletta* and Rock Pipit *Anthus petrosus*. Among wagtails, it is closest to the flight call of *M. grandis* (Fig. 5), but is lower-pitched and less 'clipped'. It is very different from the calls of *M. aguimp* (Fig. 5), *M. maderaspatensis* (Fig. 5) and *M. alba* ssp. Other calls given mainly by

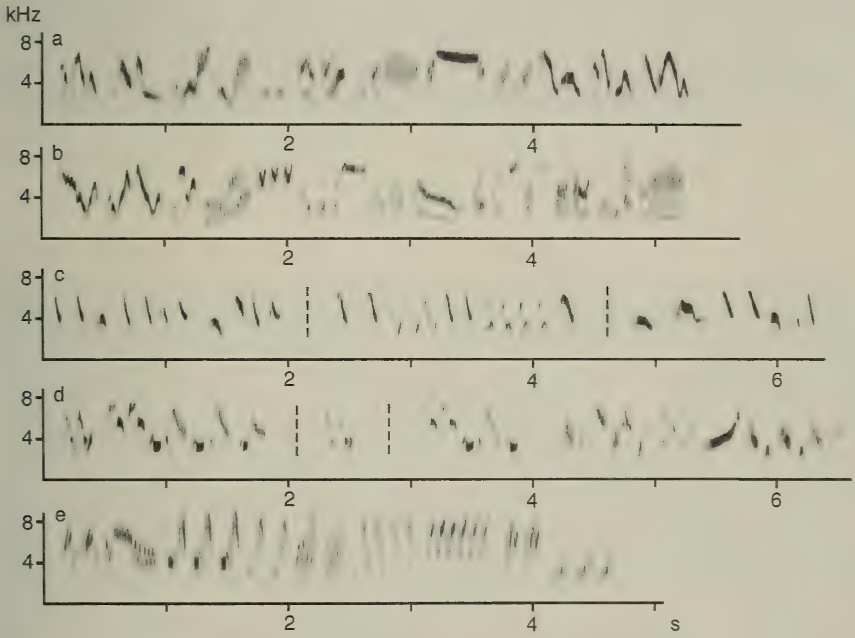


Figure 4. 'Complex' songs. (**a**, **b**) *Motacilla samveasnae*. One strophe each from two different individuals (different ones from Fig. 3). Stung Treng Province, Cambodia, mid-February 2001. Tape recordings by Per Alström. (**c**) *M. aguimp vidua*. Three strophes, Gabon, November. Tape recording by Claude Chappuis. (**d**) *M. grandis*. Three strophes, Japan. Tape recording by Toshiaki Hirano. (**e**) *M. maderaspatensis*. One strophe, Rajasthan, India, April. Tape recording by Per Alström. Sonograms in c, d and e from Alström *et al.* (in press). Pauses between strophes have been artificially shortened (marked by dashed lines) in c and d.

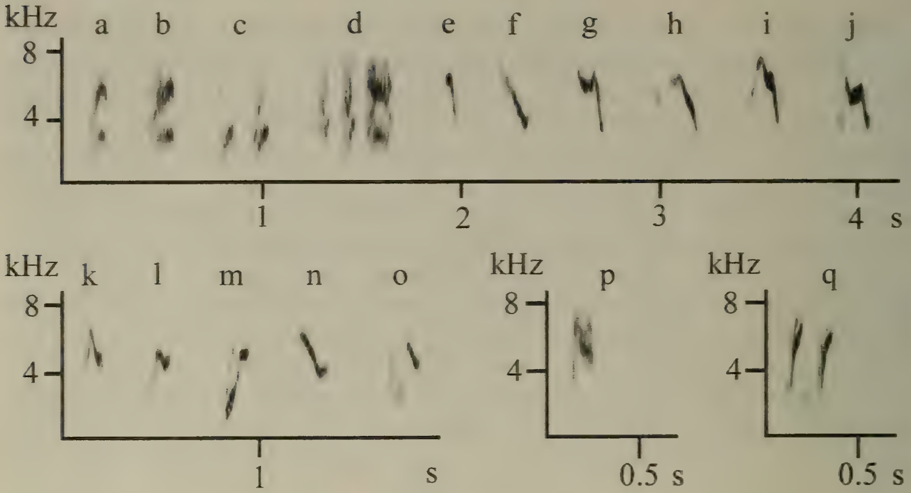


Figure 5. Calls. (**a**–**j**) *Motacilla samveasnae*. Flight calls (a–d) and calls from perched birds (e–j), Stung Treng Province, Cambodia, mid-February 2001. Tape recordings by Per Alström. (**k**–**o**) *M. aguimp vidua*. At least l and m flight calls, n and o probably from perched bird. Cameroon, December, tape recordings by Claude Chappuis (a, b, d, e); Tanzania, January, tape recordings by Claude Chappuis (c). (**p**) *M. grandis*. Flight call, Japan, October. Tape recording by Per Alström. (**q**) *M. maderaspatensis*. Flight call, Rajasthan, India, March. Tape recording by Richard Ranft National Sound Archive. Sonograms in k-q from Alström *et al*. (in press).

perched birds are short, thin, soft *tsip*, *tsiup*, *tsiep*, *tseeup*, *tsriu*, or similar (Fig. 5); some resemble calls of northwestern subspecies of *Motacilla flava*. We do not have a sufficiently large sample of equivalent calls of other black-and-white wagtails to evaluate similarities and differences.

Systematics

Five of the 10 recognised species of wagtail have mainly grey, black and white plumages: Mountain Wagtail *M. clara*, *M. aguimp*, *M. alba*, *M. maderaspatensis*, and *M. grandis*. Excluding *M. clara*, this group is thought to be monophyletic (Alström *et al*. in press, PA and Anders Ödeen, unpublished). *M. alba* is polytypic, and some of the nine distinct taxa are often treated as separate species (see Alström *et al*. in press for a review). *M. aguimp* has two rather subtly different subspecies, whereas *M. maderaspatensis* and *M. grandis* are monotypic (Vaurie *et al*. 1960, Keith *et al*. 1992, Alström *et al*. in press).

On plumage, *M. samveasnae* and *M. aguimp* resemble each other considerably more than do some taxa generally treated as subspecies of *M. alba*. For this reason, it might seem most appropriate to consider *samveasnae* a subspecies of *M. aguimp* (alternatively to treat the various distinct taxa in the *M. alba* complex as separate species). Under a 'phylogenetic' species concept *sensu* e.g. Cracraft (1989),

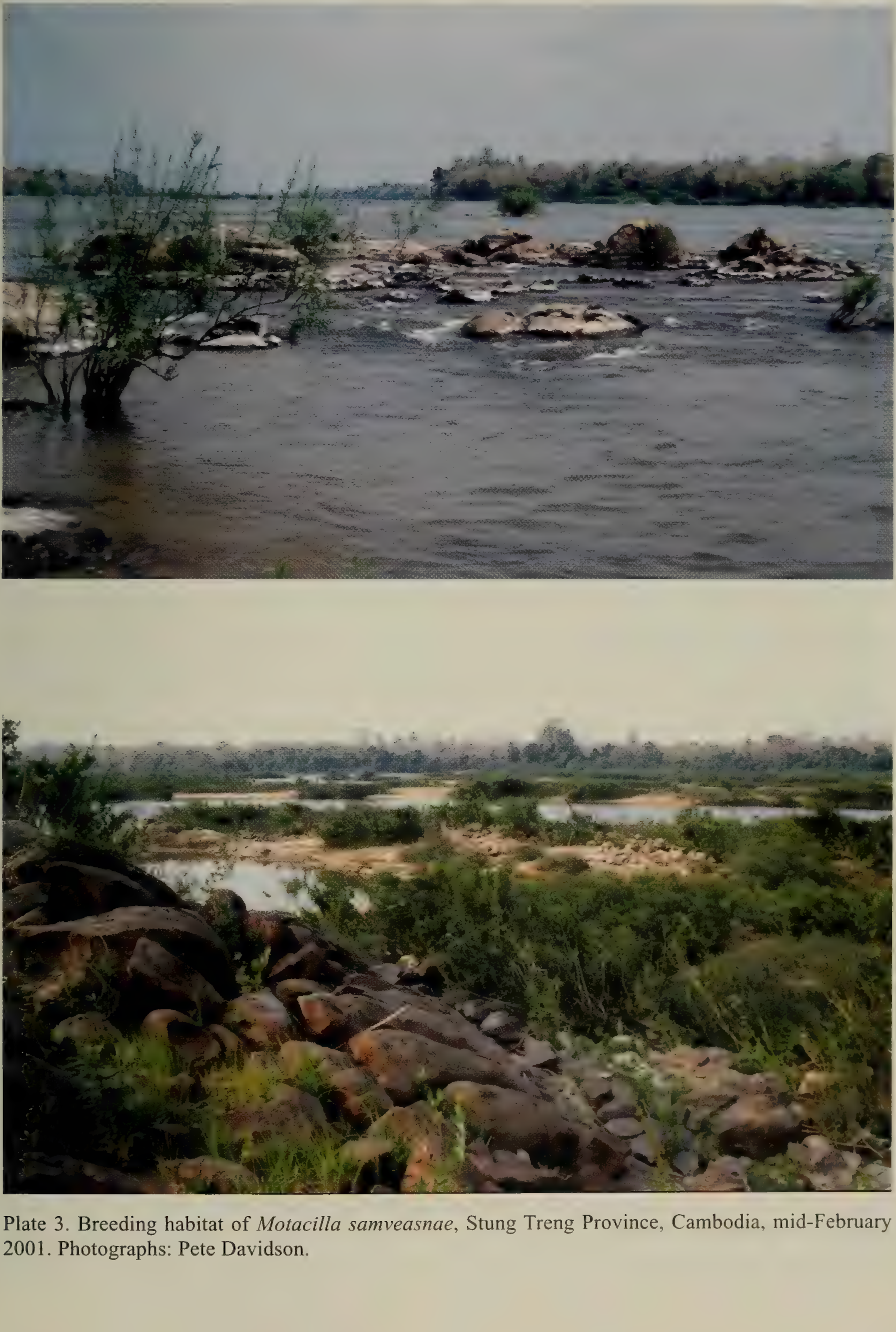


Plate 3. Breeding habitat of *Motacilla samveasnae*, Stung Treng Province, Cambodia, mid-February 2001. Photographs: Pete Davidson.

samveasnae is a species, since it is diagnosably different from *M. a. aguimp* and *M. a. vidua*. Under the 'biological' species concept (Mayr 1942), the taxonomic rank of *samveasnae* is debatable, since it is allopatric with *aguimp* and *vidua*. However, unlike the taxa in the *M. alba* complex, which have basically similar songs and calls (Alström *et al.* in press), the songs and calls of *samveasnae* and *vidua* (we lack information on *aguimp*) are very different. Moreover, according to mitochondrial DNA data (PA and Anders Ödeen, unpublished), the difference between *samveasnae* and *M. a. vidua* is greater than between *samveasnae* and any of the other black-and-white wagtail taxa; larger than between, e.g., *M. grandis* and *M. maderaspatensis*, or between these two and any of the taxa in the *M. alba* complex; and much greater than between any of the taxa in the *M. alba* complex. Actually, the molecular data suggest that *M. samveasnae* shares a more recent common ancestor with *M. grandis*, *M. maderaspatensis* and the *M. alba* complex than with *M. aguimp* (which is the most basal taxon). These facts, together with the widely disjunct distributions of *samveasnae* and *M. aguimp*, argue for the treatment of *samveasnae* as a species separate from *M. aguimp*. The differences in moult and habitat choice between *M. samveasnae* and *M. aguimp* further add to the distinctness of the former taxon.

Habitat

Almost all records of *M. samveasnae* come from the breeding season. All are from within or close to a specific form of river channel habitat, referred to as 'channel mosaic' by Duckworth *et al.* (in press) (Plate 3). Flow in the Mekong is strongly seasonal, reflecting the marked dry–wet season climatic regime (e.g. at Kratie, maximum discharges are approximately 54 times minimum discharges; UNECAFE 1966). In the low-flow season (roughly November–May), a typical mosaic stretch is in a broad, lowland river, the stream-bed exposed to provide rocky outcrops and bushland, often with gravel shoals and/or sand bars, tufted grasses and annual dicotyledons. Fast-flowing streamlets cross the sediment and rock bars. The bushes suffer prolonged annual submersion, and at least some species seem not to grow on the adjacent floodplain. *Homonoia riparia* Lour. (Euphorbiaceae) dominates, with *Pittosporum* sp. (Pittosporaceae; particularly on deep sand), *Syzygium ripicola* (Craib) Merr. & L. M. Perry (Myrtaceae; infrequent), *Combretum trifoliatum* Vent. (Combretaceae; infrequent), *Telectadium edule* Baill. (Asclepiadaceae; especially on rocks) and others admixed. Breeding *M. samveasnae* is strongly associated with swift-flowing braided sections with many rocks and bushes. In 2001, birds were frequently observed where bushes stuck out of the water, but no land was exposed; this presumably reflected atypically high water levels in that year. In the extensive sections of flooded forest along the Mekong, *M. samveasnae* was not found among the trees, but was, as usual, amid bushes and rocks. Sandbar-dominated stretches of channel mosaic may support resident *M. samveasnae*: one extensive sandbar with only one rock-bar, outcropping intermittently, and supporting only a few bushes, formed a pair's territory. This pair fed frequently on the sand surface, but most pairs had little or no unconsolidated sediment in their territories. Breeding birds only rarely use the earthen banks at the channel margins or those higher islands with vegetation resembling that of the floodplain. Most records come from wide rivers (>100 m across); the minimum width for the species is unknown. All known localities lie below 110 m a.s.l. The only record outside a channel is of two at a pool, within 200 m of a river (Nong Puler; Appendix 2). Many river surveys (notably Timmins & Men Soriyun 1998) checked floodplain pools extensively in areas where *M. samveasnae* occurs, but did not record it. The habitat choice and highly specific breeding habitat is unique among Eurasian wagtails, while *M. aguimp* shows much wider habitat use (see Keith *et al.* 1992).

During high-flow season, channel mosaic is submerged, to greatest depth in August–September. Some tributaries sometimes fill by early May; some channels remain high well into October, possibly even December, in some years. Observations of riverine birds in Indochina have strongly focussed upon December–May, and river channel specialists' high-flow season location is poorly known. The sole high-flow season record of *M. samveasnae* comes from a breeding area, and was of a bird perched on bush-tops protruding above the floodwaters (Appendix 2).

Breeding and behaviour

Like other South-east Asian river-channel passerines, *M. samveasnae* breeds in the latter part of the low-flow season. Observed breeding behaviour includes singing, sexual chasing and the carrying of nest material in mid-February (2000 and 2001), food-carrying to nestlings, and (separately) a juvenile on 23 April (2000), to juveniles in mid-April (2001) and in mid- and late May (1997 and, many, 1998). Two females collected (BMNH 2001.8.2 and 2001.8.3) had developing brood patches, well advanced in the former, which had a well-developed egg in its oviduct (Anders Hansson, pers. comm.). Breeding must cease by May or June, when water levels rise rapidly. In mid-February 2001, apparently just prior to egg-laying, most birds were in pairs (only one bird believed to be single was seen), and usually remained together also when approaching the speaker in response to playback of song. Sometimes neighbouring males were apparently counter-singing, but territorial exclusion seemed rather weak. On several occasions, a bird was observed to display momentarily to another individual by pointing its bill upwards, highlighting the conspicuous throat/breast pattern. This display appeared to be a sign of dominance.

Males usually sang from atop a bush or boulder, less commonly from flat ground. Unlike other wagtails, *M. samveasnae* fed regularly within emergent bushes, walking along branches and picking small food items from these or from the leaves. Bushes were also used as shaded loafing places.

In several observations of *M. samveasnae* and *M. a. leucopsis* feeding in the same general area, sometimes only feet from each other, no interaction was observed. If flushed, the two tended to depart independently.

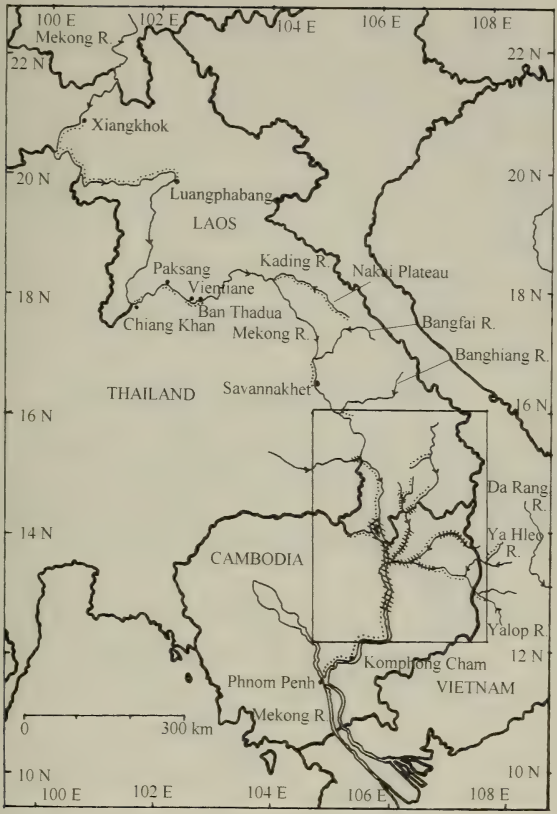
Known distribution

In the breeding season, birds occupy a substantial length of the Cambodian Mekong upstream from Kampi (the downstream extent of channel mosaic habitat) into southern Laos. The upstream limit remains unclear. Lengthy stretches (apparently, wherever channel mosaic habitat occurs) of the Mekong tributaries the Kong (Cambodia and Laos), San (Cambodia) and Srepok (Cambodia) rivers are also occupied. In optimal habitat, linear densities reach many pairs per kilometer. The one wet-season record so far concerns a bird in a breeding area; the Thai specimens are also from the non-breeding season but lack precise site data. Similar habitat searched in north and central Laos was devoid of *M. samveasnae*, as were rivers or stretches in the range of the species, but lacking channel mosaic habitat. Sites are plotted on Fig. 6 and precise locations are given in Appendix 2. Birds apparently *M. samveasnae* (but lacking the white neck patch) are illustrated, as *M. a. alboides*, in two field guides for China (Viney *et al.* 1994, MacKinnon & Phillips 2000); this presumably reflects secondary use of Lekagul & Round's (1991) illustration, rather than Chinese records of the taxon.

Conservation

Numbers of *M. samveasnae* are certainly healthy in Cambodia; they cannot yet be assessed in Laos. While many other river channel birds are under intense regional threat (Lekagul & Round 1991, Duckworth 1996, Duckworth *et al.* 1998b, 1999, in press, Evans *et al.* 2000, Evans in press), the mosaic areas upon which the wagtail depends are less vulnerable to most human-induced changes than are purely sedimentary features (which can be washed or excavated away), the species is too small to be hunted specifically, and territories right next to towns, e.g. Stung Treng, indicate a high tolerance of human presence. Large dams, notably for hydroelectric power, are the most likely threat, because they may involve trans-basin diversions and/or big storage head-ponds, where water is collected during the wet season and released during the dry. Dams on low-gradient rivers, which flood the channel (including the species' only breeding habitats) a substantial way upstream are probably, given the habitat within its range, the main threat to the wagtail; many such projects are proposed for the Mekong.

M. samveasnae occurs in several protected areas: Xe Pian and (provisionally) Phou Xiang Thong National Biodiversity Conservation Areas (NBCA) in Laos, Lomphat Wildlife Sanctuary in Cambodia, and potentially Pha Taem and perhaps Kaeng Tana National Parks in Thailand. However, little channel mosaic habitat is within, rather than abutting, protected areas and, moreover, because water flow characteristics depend upon distant upstream activities, protected areas cannot directly ensure the species' survival. The species occurs mainly in Laos and Cambodia, but events in Thailand, Vietnam and China also influence stream flow. Active conservation measures for this species, as for the entire riverine biodiversity (itself in

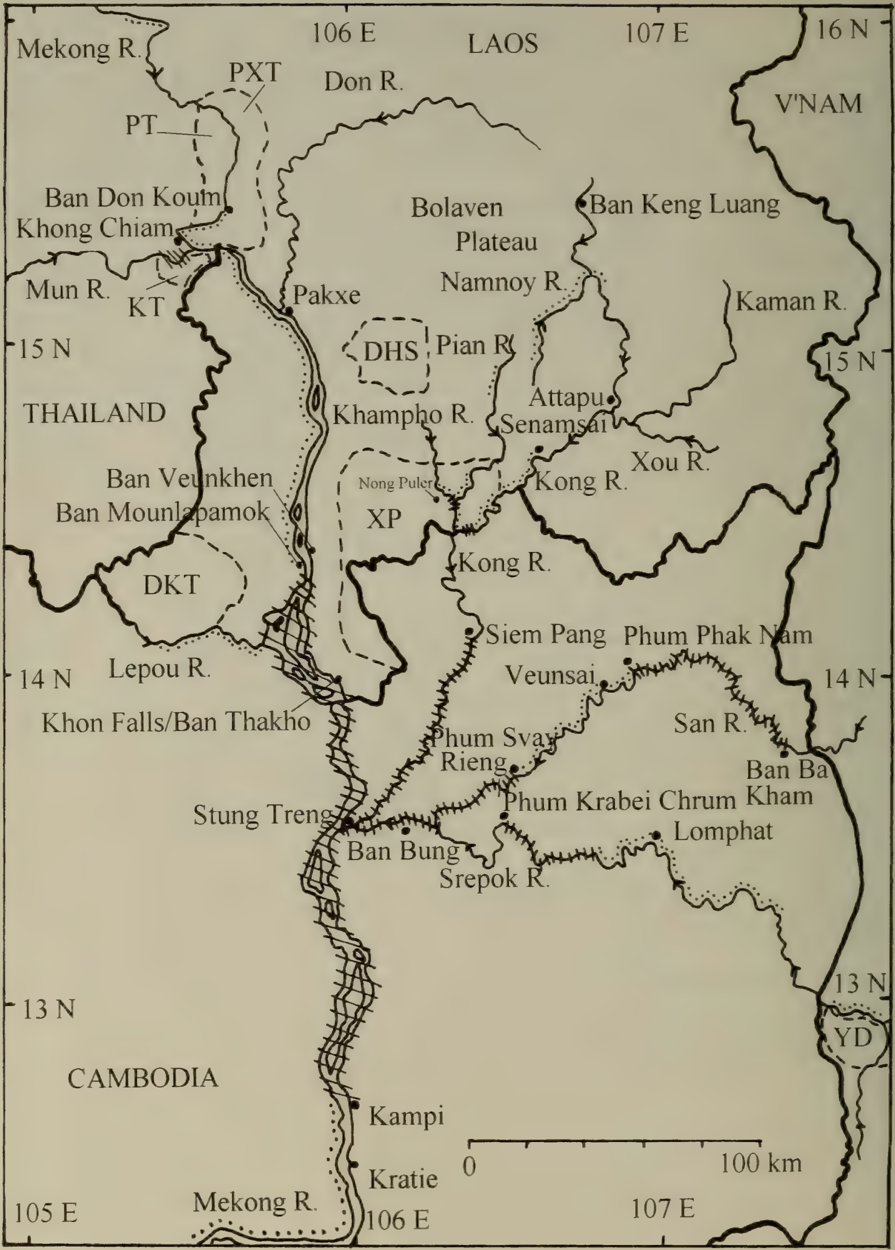

100 E
102 E
104 E
106 E
108 E
Mekong R.
22 N
22 N
Xiangkhok
20 N
20 N
Luangphabang
LAOS
Kading R.
Nakai Plateau
Paksang
Vientiane
18 N
18 N
Ban Thadua
Chiang Khan
Mekong R.
Bangfai R.
Banghiang R.
THAILAND
Savannakhet
16 N
16 N
Da Rang R.
14 N
Ya Hleo R.
CAMBODIA
Yalop R.
12 N
Komphong Cham
VIETNAM
Phnom Penh
Mekong R.
0
300 km
10 N
10 N
100 E
102 E
104 E
106 E
108 E

(a)

Figure 6. Known distribution of *Motacilla samveasnae*, (a) Indochina, showing surveyed areas; (b) enlargement of occupied area.

Bold line, national boundary, except where formed by a marked river
Arrowed line, river mentioned in text, with direction of flow
Hatched river stretch, confirmed records of *M. samveasnae*
Dotted river stretch, at least moderately well surveyed with no records of *M. samveasnae*
Dashed line, boundary of protected or proposed protected area

DHS	Dong Hua Sao National Biodiversity Conservation Area
DKT	Dong Khanthung proposed National Biodiversity Conservation Area
KT	Kaeng Tana National Park
PXT	Phou Xiang Thong National Biodiversity Conservation Area
PT	Pha Taem National Park
R	river
XP	Xe Pian National Biodiversity Conservation Area
YD	Yok Don National Park


Mekong R.
106 E
LAOS
107 E
16 N
PXT
Don R.
V'NAM
PT
Ban Don Koum
Bolaven
Plateau
Ban Keng Luang
Khong Chiam
Mun R.
KT
Pakxe
Namnoy R.
Kaman R.
15 N
DHS
Pian R.
15 N
THAILAND
Attapu
Khampho R.
Senamsai
Xou R.
Ban Veunkhen
Nong Puler
Kong R.
Ban Mounlapamok
XP
DKT
Kong R.
Siem Pang
Phum Phak Nam
14 N
Lepou R.
Veunsai
14 N
Khon Falls/Ban Thakho
San R.
Phum Svay
Rieng
Ban Ba
Kham
Phum Krabei Chrum
Stung Treng
Lomphat
Ban Bung
Srepok R.
13 N
13 N
YD
CAMBODIA
Kampi
0
100 km
Kratie
Mekong R.
105 E
106 E
107 E

(b)

crisis; Dudgeon 2000), will centre on holistic review and modification of proposals for large dams, and will necessitate international cooperation.

M. samveasnae occupies a very small total area, because of the linear nature of its habitat. This makes it permanently susceptible to extinction. Localised high densities in optimal habitat may be separated from other such stretches by long reaches of unsuitable habitat. Under IUCN (1994) red list criteria for threatened species, the bird may best be considered 'near-threatened' under C2b and/or B1+B2c. At present, the only need for active conservation attention is in the highly complex, politicised, area of dam development, and one major project in a key stretch of river could necessitate modifying status to Vulnerable. This urges for regular review of the status of *M. samveasnae*, and specific consideration of it in environmental assessment work for any dam within its range.

Information needs

For a newly described taxon, *M. samveasnae* is already relatively well known. Because no obvious current threats are identified, it is not a high conservation research priority. This assessment could change quickly, if certain dams are built. The following information, with particular attention to upstream limits, would help assess the likely effects of such schemes:

1. Location, habitat use and conservation issues of birds during high flow season (June–October).
2. Status in Vietnam, e.g. the Srepok river and its tribuaries the Ya Hleo and the Ya Lop, and the San river; also the Da Rang drainage and potentially others in this region, which flow into the South China Sea.
3. Status on the Mekong and larger tributaries (Don, Banghiang, Bang-Nouan and Bangfai rivers) from Pakxe upstream to Vientiane, during the breeding season (February–May).
4. Current status around Ban Dan Kao, Thailand.
5. Status on the Kong river and larger tributaries (Kaman and Xou rivers) in south Laos.

Acknowledgements

We are most grateful to Ty Sokhun, Director General of the Department of Forestry and Wildlife, of the Ministry of Agriculture, Forestry and Fisheries, Royal Government of Cambodia, for permission to collect and export these specimens, and the Wildlife Conservation Society Cambodia Program for their logistical support of this work. Surveys in Cambodia took place through the Department of Forestry and Wildlife and those in Laos through the Centre for Protected Areas and Watershed Management of the Lao PDR Government Department of Forestry. We are indebted to Per Ericson, Göran Frisk, Anders Hansson, Peter Mortensen and the Swedish Museum of Natural History for preparing six of the specimens, and for granting access to their collection. Comparison with museum specimens in other collections was generously assisted by Mark Adams, Robert Prŷs-Jones and Frank Steinheimer (BMNH), Lakkana Pakkarnseree and Nivesh Nadee (TISTR), Paul Sweet (AMNH), and Mats Eriksson (Museum of Evolution, Uppsala University). Frank Steinheimer and Mark Adams were also extremely helpful in taking photograps of some type material in the BMNH, and Janet Hinshaw provided the same service at the University of Michigan Museum of Zoology. Göran Frisk and Lars-Erik Jönsson were kind enough to photograph the type series for us, and Stefan Gunnarsson expertly produced publishable pictures from PA's video footage. We are most grateful to Krister Mild for much assistance during the research and writing of this paper. Alan Knox and Robert Prŷs-Jones provided comments that have substantially improved the paper. We thank Anders Ödeen for supplying unpublished results from DNA work; Edward Dickinson for suggestions on literature; Effie Warr for provision of otherwise near-unobtainable literature held at BMNH; and Mary Morgan and Mats Thulin for advice on the scientific name. Field records or other information were received from: Isabel Beasley, Peter Cunningham, David Dudgeon, Frédéric Goes, John Howes, Kamol Komolphalin, Deap Loeung, Bill Robichaud, Craig Robson, Philip Round, Bryan Stuart, Richard Thewlis, Rob Tizard, Joe Walston, and Niek van Zalinge. Plant specimens were identified by David Middleton (Harvard University Herbaria) and Wim Giesen. Funding for the pre-2000 surveys came from a large variety of sources (as detailed in the papers cited), mostly being channelled through IUCN-the World Conservation Union, Wildlife Conservation Society, World Wide Fund for Nature and Fauna & Flora International.

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APPENDIX 1

List of specimens in type series. Holotype in bold. BMNH is the Natural History Museum, Tring, UK; AMNH the American Museum of Natural History, New York, USA; and NRM the Swedish Museum of Natural History, Stockholm, Sweden. [1]Tissue samples of all specimens will be deposited in the BMNH, AMNH, NRM and the Zoological Museum, University of Copenhagen, Denmark. [2]Some field photographs (including video grabs) will be deposited in the BMNH. [3]All tape recordings will be deposited at the British Library, National Sound Archive, London, UK.

Museum Reg. no.	**Location**	**Date**	Sex	Age	Skin	Tissue[1]	Skeleton	Gizzard	Photographs[2]	Tape recordings[3]
BMNH A/2001.6.1	13°31'56"N, 105°59'15"E	13 February 2001	F	Ad.	x	x	x	x	x	–
BMNH 2001.8.1	13°32'28"N, 106°04'12"E	13 February 2001	M	Ad.	x	x	x	x	x	x
BMNH 2001.8.3	13°31'47"N, 105°58'25"E	14 February 2001	F	Ad.	x	x	x	x	x	–
BMNH 2001.8.2	13°38'56"N, 106°02'26"E	14 February 2001	F	Ad.	x	x	x	x	x	–
NRM 20016100	13°32'8"N, 105°57'37"E	16 February 2001	F	1st-ad.	x	x	x	x	x	–
BMNH 2001.8.4	13°32'8"N, 105°57'37"E	16 February 2001	F	1st-ad.	x	x	x	x	x	–
BMNH 2001.8.5	13°32'8"N, 105°57'37"E	16 February 2001	M	Ad.	x	x	x	x	x	x
AMNH skin 833352	13°35'50"N, 106°05'32"E	12 February 2001	M	Ad.	x	x	x	x	x	–

APPENDIX 2

Site records and gazetteer

Previous identifications by the authors and colleagues of '*M. a. alboides*' using Lekagul & Round (1991) are taken as *M. samveasnae*. Some such identifications have field descriptions and/or sketches confirming *M. samveasnae*. Past records of '*M. alba*', subspecies not given, where habitat, season and/or locality suggest that *M. samveasnae* might occur, are listed, explicitly as indeterminate. Those previously published as *M. alba* (here indicated as '*M. alba*') should be modified to *M. alba*/*M. samveasnae*. On current distributional knowledge, *M. samveasnae* need not be invoked for the many other published '*M. alba*' from Laos during the 1990s. Records not credited to source are those previously unpublished of the authors.

Breeding season records

***Streams with records of M. samveasnae*: Mekong mainstream** (Cambodia): Lao border – Stung Treng, 7 June 1998; Lao border – Kampi, February 1999 and February 2000, locally common. Kampi, 10 February 1999, two; 23 April 2000, a few; 14-15 April 2001, several pairs with fledglings. Kong river inflow – 13°32'08"N, 105°57'37"E, February 2001, locally common. Downstream of Kampi, no *M. samveasnae* were seen as far as Komphong Cham in February and April 2000, nor has any been seen in numerous observations around Phnom Penh. These areas lack channel mosaic habitat. (Laos): Phou Xiang Thong NBCA – Khon falls, spring 1996, '*M. alba*' present patchily, (Evans *et al*. 2000), in fact at least some *M. samveasnae*, singles, Ban Donkoum, 12 March 1996, (identification provisional; R. M. Thewlis *in litt*. 2001) and Ban Mounlapamok – Lepou river-mouth, 28 April, and 'probably common', Phou Xiang Thong NBCA, in the extensive channel mosaic habitat (R. M. Thewlis *in litt*. 2001); no black-and-white wagtails, Phou Xiang Thong NBCA – Ban Veunkhen, late April. Ban Thakho, 4–6 February 1993, 1–2 (see Thewlis *et al*. 1996). Khon falls, 4 April 1993, 1+ (see Thewlis *et al*. 1996), 26–27 May 1997, juveniles (not confirmed to species), and, 19 February 1999, a pair (K. Komolphalin *in litt*. 2001). Ban To More, Wat Kuck Meung (Champasak Province), 19 February 1999, one (K. Komolphalin *in litt*. 2001). The upstream limit is unclear; the provisional record from Phou Xiang Thong NBCA is significantly upstream any certain record. Superficially suitable mosaic occurs patchily at least to the far north of Laos. Evans (in press) recorded '*M. alba*' south of Savannakhet, in breeding season 1997; but birds on sandbars were *M. alba*, while no wagtails were found in mosaic habitat. P. D. Round (*in litt*. 2000) did not record *M. samveasnae* in spot checks of the Mekong channel between Chiang Khan and Khong Chiam, but there has been very little other searching on the Thai/Lao Mekong upstream of Phou Xiang Thong NBCA. *M. samveasnae* was probably absent from extensive channel mosaic around Paksang, Sangthong District, Vientiane, in 1996, where '*M. alba*' was seen in February, March and July, but not June; no notes were taken on form, but channel mosaic was covered carefully, especially in June (Duckworth 1996, 1997). Extensive observations around Vientiane / Ban Thadua, 1992–2000, recorded no *M. samveasnae*, but it was not specifically checked for. *M. samveasnae* was searched for, and not found, on the Mekong between Louangphabang and Ban Xiangkhok (Louang–Namtha Province) in April 2000 (Duckworth *et al*. in press); it probably does not occur. **Kong** (Cambodia): Stung Treng – Siem Pang, February 2000, common. Stung Treng – a few km upstream of San / Kong confluence, February 2001, less abundant than in 2000; water levels much higher. (Laos): A few km upstream of the Pian river mouth, 5–6 May 1995, up to 3 (see Duckworth *et al*. 1998a). Pian mouth – Senamsai, 13 March 1993, '*M. alba*' common (Thewlis *et al*. 1996, R. M. Thewlis *in litt*. 2001); habitat suitable for *M. samveasnae*. Near Ban Kengluang, December 1997, four '*M. alba*' (Showler *et al*. 1998); habitat seems suitable for *M. samveasnae*. **Pian** (Laos): Khampho / Pian confluence, 1 March 1993, two. A few hundred meters up the Khampho, 2 March 1993, one. Nong Puler (a floodplain pool), 4 March 1993, two (all records see Thewlis *et al*. 1996). Khampho inflow – Pian mouth, 13 March 1993, '*M. alba*' common (Thewlis *et al*. 1996, R. M. Thewlis *in litt*. 2001). **San** (Cambodia): Veunsai – Phum Ba Kham (17 km of the Vietnamese border), 11–17 May 1998; common, including many juveniles. Veunsai – 13°41'N, 106°28'E, February 2000; San / Kong confluence – San / Srepok confluence, February 1999 and February 2000; San / Kong confluence – Ban Bung, February 2001, locally abundant. Channel mosaic along the San is distributed patchily, and so, therefore, is *M. samveasnae*. Between the San–Kong confluence and Phum Svay Rieng are many sizeable patches of channel mosaic, mostly with wagtails. From Phum Rieng to Phum Phak Nam, the San is wide, relatively slow, and dominated by sandbars; channel mosaic is very restricted, and no wagtails were found. Upstream of Phum Phak Nam, patches of channel mosaic occur more frequently, especially towards Phum Ba Kham, where they are every few kilometers. **Srepok** (Cambodia): Phum Krabei Chrum – Lomphat, 31 May – 4 June 1998; patchy. Lomphat – Srepok triangle, February 2000, probably not present; some islands and rock bars, but little mosaic habitat, and none extensive. (Vietnam): Srepok around Yok Don National Park, and Ya Hleo tributary, May–June 1997, no black-and-white wagtails at all (Le Xuan Canh *et al*. 1997).

Potential sites (records of '*M. alba*', now indeterminate): *Namnoy river* (Bolaven Plateau – Kong river), spring 1995 (Duckworth *et al.* 1998a); mostly fast and narrow; no extensive mosaic noted. *Lower Xou river*, February 1996, *Pools near Attapu town*, 1 March 1996, small stream in *Dong Hua Sao NBCA*, February 1996 (all Evans *et al.* 2000). *Kaman river*, January 1997; not found in same stretches in late April–May 1997 (see Davidson *et al.* 1997), and little mosaic habitat seen.

Streams lacking records: Kading/Theun river and tributaries (Mekong – Nakai Plateau), much superficially suitable habitat, but no suggestion of breeding wagtails despite copious fieldwork in springs 1994–1997 (Duckworth *et al.* 1998a, 1998b, Evans & Timmins 1998, WCS Lao Program unpublished data). Lepou river, in Dong Khanthung proposed NBCA; no black-and-white wagtails in late April 1996, nor in February / July 1998 (Round 1998); no mosaic, river being sluggish and silty. Other rivers in south and central Laos (see map in Duckworth *et al.* 1998b for coverage), and Cambodia, have not been covered adequately enough for the lack of records to be meaningful.

Non-breeding season records

There is only one field record of *M. samveasnae* (an adult at Khon falls, August 1999) during July – January; river bird survey effort has been very low in the non-breeding season. The TISTR specimens came from December (probably before breeding starts), from Ban Dan Kao (Amphoe Khong Jiam, Ubon Ratchathani Province), which is on a stream flowing via the Mun river to the Mekong. P. D. Round (*in litt.* 2000) found no wagtails in this general area on 27 April 2000. Cunningham (1998) recorded black-and-white wagtails around Khon in all months of 1997 except July and August. '*M. a. alboides*' accounted for some observations, but details of taxa recorded each month are not available (P. Cunningham *in litt.* 2001).

Gazetteer of sites mentioned in the text

For each site is given the site name (spelling follows official government map if site is marked), country (KH=Cambodia, LA=Laos, TH=Thailand), co-ordinates, and river upon which it lies.

Attapu (LA), 14°48′N, 106°50′E, on Kong / Kaman; **Ban Bung** (KH), 13°34′N, 106°09′E, on San; **Ban Dan Kao** (TH), 15°20′N, 105°30′E, on small tributary of Mun; **Ban Donkoum** (LA), 15°24′N, 105°34′E, on Mekong; **Ban Kengluang** (LA), 15°26′N, 106°44′E, on Kong; **Ban Mounlapamok** (LA), 14°20′N, 105°52′E, on Mekong; **Ban Thadua** (LA), 17°53′N, 102°44′E, on Mekong; **Ban Thakho** (LA), 13°58′N, 105°59′E, on Mekong; **Ban Veunkhen** (known locally as Ban Mounlapamok, LA), 14°22′N, 105°52′E, on Mekong; **Ban Xiangkhok** (LA), 20°54′N, 100°39′E, on Mekong; **Chiang Khan** (TH), 17°53′N, 101°38′E, on Mekong; **Kampi** (KH), 12°36′N, 106°01′E, on Mekong; **Khampho river mouth** (LA), 14°31′N, 106°21′E, on Pian; **Khon falls** (LA), 13°57′N, 105°59′E, on Mekong; **Khong Chiam** (TH), 15°19′N, 105°31′E, on Mun/Mekong; **Komphong Cham** (KH), 12°00′N, 105°28′E, on Mekong; **Kratie** (KH), 12°28′N, 106°01′E, on Mekong; **Lepou river mouth** (LA/KH), 14°05′N, 105°14′E, on Mekong; **Lomphat** (KH), 13°30′N, 106°59′E, on Srepok; **Louangphabang** (LA), 19°53′N, 102°08′E, on Mekong; **Nong Puler** (LA), 14°31′N, 106°19′E, by Pian; **Paksang** (LA), 18°14′N, 102°08′E, on Mekong; **Pakxe** (LA), 15°07′N, 105°48′E, on Mekong; **Phnom Penh** (KH), 11°33′N, 104°55′E, on Mekong; **Phum Ba Kham** (known locally as **Phum Tangsey**, KH), 13°51′N, 107°22′E, on San; **Phum Krabei Chrum** (KH), 13°34′N,106°31′E, on Srepok; **Phum Phak Nam** (KH), 14°00′N, 106°55′E, on San; **Phum Svay Rieng** (KH), 13°42′N, 106°33′E, on San; **Pian river mouth** (LA), 14°27′N, 106°20′E, on Mekong; **San/Kong confluence** (KH), 13°30′N, 106°04′E, on San/Kong; **Savannakhet** (LA), 16°34′N, 104°45′E, on Mekong; **Senamsai** (LA), 14°41′N, 106°38′E, on Kong; **Siem Pang** (KH), 14°07′N, 106°23′E, on Kong; **Stung Treng** (KH), 13°31′N, 105°58′E, on San/Kong; **Veunsai** (KH), 13°58′N, 106°48′E, on San; **Vientiane** (LA), 17°58′N, 102°37′E, on Mekong.

New bird records for the island of Panay, Philippines, including the first record of the Asian Stubtail *Urosphena squameiceps* for the Philippines

*by E. Curio, J. Hornbuckle, Y. de Soye, P. Aston and L. L. Lastimoza**

Received 4 March 2000

Of the ten to twelve major Philippine islands, the fauna of Panay is particularly understudied. This is well exemplified when comparing its known avifauna with that of neighbouring Negros, an island of similar size and belonging to the same biogeographical subregion, the West Visayas (named "Central Philippines" by McGregor, in Dickerson (1928); including the islands of Bantayan, Guimaras, Masbate, Negros, Panay, Siquijor, and Ticao). According to Dickinson *et al.* (1991; hereafter DKP), Negros harbours 271 species of birds, of which 190 are considered breeding residents. Panay, in contrast, has but 152 recorded species, of which 132 are known to be resident. Whereas 127 species are known to occur on Negros but not on Panay, only eight species known from Panay have not been found on Negros.

Of the entire faunal subregion, only Negros and Panay retain sizeable forest remnants (1.9 and 3.2 % of the land mass, respectively, Development Alternatives Inc. 1992). The two islands have been ranked as one area among the twelve most critically threatened and important Endemic Bird Areas of the world (Bibby *et al.* 1992), and better information on distribution and conservation status of their bird species is badly needed. This is particularly so for Panay which, due to inadequate exploration, has received too little attention by the conservation community, although it holds larger forest remnants than Negros.

In this paper, we present one new species record for the Philippines, an additional 34 new species records for the island of Panay and two new records from the satellite island of Boracay, all obtained during ornithological field work at various localities. Additionally, we document two other potential new records for Panay, plumage variation in one species, and further records of a 'critically endangered' species. We thus provide an update of the information given in DKP. Further details on species of particular conservation relevance are to be given in a separate paper (Curio *et al.*, unpublished; see also Klop *et al.*, 1998).

Scope of projects and localities

The data presented here stem mainly from two separate projects and reports by PA during five visits to southeast Panay. The main source is the Philippine Endemic

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*This is publication No. 9 of the "Philippine Endemic Species Conservation Project" of the Frankfurt Zoological Society.

Species Conservation Project (hereafter PESCP) of Frankfurt Zoological Society and Animal Behaviour Research Group (Ruhr-University Bochum), in which the authors, apart from PA, have been participants, and which has been operating on the islands of Negros and Panay since 1995. The gathering of faunistic data was partly incidental but at four localities (Hakot, Hamtang, Lahang, Sibaliw; see below) extensive mist-netting was conducted. Several visitors to the research station at Sibaliw, including Des Allen and Ben King, also contributed records. Secondly, two expeditions to the Central Panay Mountains in 1992 and 1993, under the aegis of the Philippine Department of Environment and Natural Resources (DENR), West Visayas State University, the Japan Wildlife Research Center and the University of the Philippines at Los Baños (hereafter DENR-JWRC), conducted faunistic surveys (mist-netting, transect line counts) in the proposed Panay Mountains National Park. For localities see Fig. 1.

Central Panay Mountains

The Central Panay mountains hold the largest remaining tract of native forest in the West Visayan islands. Forest is mainly located on the slopes of four major mountain massifs, Mt Madja-as (2,117m a.s.l.) in the north, Mt Nangtud (2,049m a.s.l.) and Mt Baloy (1,728m a.s.l.) in the centre (elevations from Harper & Fullerton, 1994), and Mt Inaman (1,325 m) in the south. These areas are interconnected to some extent by forest corridors.

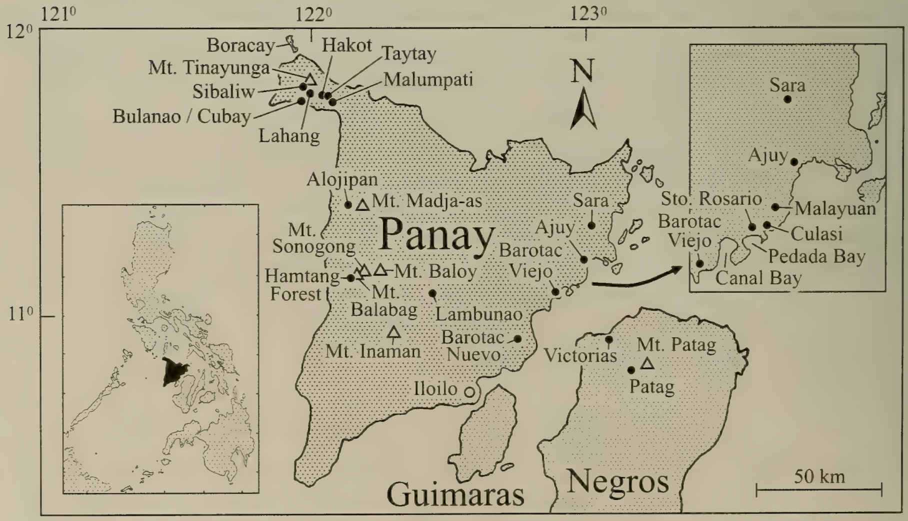
121⁰
122⁰
123⁰
12⁰
11⁰
Boracay
Hakot
Taytay
Mt. Tinayunga
Malumpati
Sibaliw
Bulanao / Cubay
Lahang
N
Alojipan
Mt. Madja-as
Sara
Mt. Sonogong
Panay
Ajuy
Barotac Viejo
Hamtang Forest
Mt. Baloy
Mt. Balabag
Lambunao
Mt. Inaman
Barotac Nuevo
Iloilo
Victorias
Mt. Patag
Patag
Guimaras
Negros
Sara
Ajuy
Sto. Rosario
Malayuan
Barotac Viejo
Culasi
Pedada Bay
Canal Bay
50 km

Figure 1. Map of Panay, Philippines showing the locations mentioned in the text.

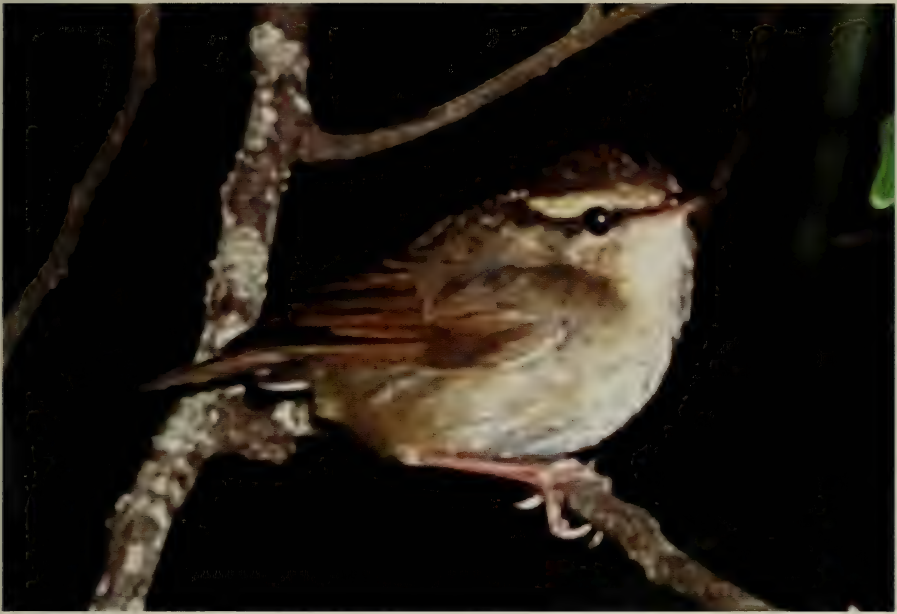

Plate 1. Photograph of Asian Stubtail *Urosphena squameiceps* captured at Sibaliw, Panay on 9 October 1999 (photograph by Stephan Luft).

Hamtang *(PESCP fieldwork; March-April 1995 and March 1996; 11°08'N, 122°11'E)*

Hamtang is a forested mountain valley encompassing elevations from 900 to 1,100 m, located on the western slope of the Central Panay Mountains, west of Mt Baloy and southwest of Mt Sonogong (1,474 m a.s.l.). The nearest village, to the south, is Sitio Nawili, Barangay Igsoro, Bugasong, Antique Province, located at 180 m a.s.l. Barangay Pandanan is halfway between Nawili and the town of Valderama, Antique. The vegetation is tall, primary upland transition forest with significant proportions of *Casuarina* at lower, and *Podocarpus* at upper elevations. This forest supports moderate epiphyte and moss cover, and understorey vegetation density. In most places, the moderately open canopy exceeds 20 m, with the tallest emergents reaching above 40 m. Large fig *Ficus* trees are relatively common. In the vicinity of the study area, very little forest is left below 900 m. The forest is bordered by non-native cogon *Imperata cylindrica* grasslands and steep hillsides on three sides, but is contiguous with remaining tracts of forest on the higher slopes and ridges towards the north and northeast. These are again connected to the forests around Mt Baloy. The topography is rugged, yet the valley itself possesses more accessible terrain. Unless noted specifically in the species accounts, bird records are from 950 ± 20 m elevation.

College of Agriculture and Forestry Forest Reserve *(PESCP fieldwork; 22/23 February 95; 11°3'N, 122°29'E)*
A small isolated forest reserve (*c.* 1 km^2) at the eastern foothills of Mt Baloy, comprising disturbed lowland forest bordered by agricultural areas. The reserve is part of the College of Agriculture and Forestry of West Visayas State University, near Barangay Bayoyo, Lambunao, Iloilo.

Northwest Panay Peninsula

The mountain range of the NW Panay peninsula harbours what must be considered the last relatively significant remnant (*c.* 5,000-7,000 ha) of low elevation forest in the West Visayas, yet this has only recently come to the attention of the conservation community in the Philippines. Forest in some sections starts as near to the sea as 2 km and at elevations as low as 200 m. The highest peak of the inland mountain range, Mt Tinayunga, reaches 915 m. The forest area consists of two major contiguous blocks: the western quarter with the last significant stands of tall "lawa-an" *Shorea* forests, and an eastern portion of open forest on limestone with various levels of dominance by climbing bamboo (*Dinochloa* sp., the only species of this type in the Philippines, Haeupler pers. comm.). In the latter the tops of most of the higher ridges are dominated by impenetrable climbing bamboo; in addition, ridgetop open-canopy mossy forest occurs with a dense understorey, slightly stunted and heavily clad in moss layers and epiphytes.

Hakot *(PESCP fieldwork; May 1996; 11°47' N, 122°02' E)*
Accessed from Sitio Malumpati, Barangays Guia and Kandari, Pandan, Antique, and located towards the centre of the mountain range, at 600 to 750 m, Hakot mountain valley is located amidst primary submontane forest of intermediate stature, with broken canopy, fairly dense understorey, and covered in moss layers and vascular epiphytes (including *Nepenthes* pitcher plants). The primary forest is dominated by "Bankalawan" trees, with various species of palms, including rattans, while on the valley floor, is an area of *c.* 3-5 ha of 8-10 m tall secondary forest, dominated by "Balante" (*Homalanthus* sp.) and large treeferns (*Cyathea* sp.). Only a few prominent fig trees were found within the study area.

Cubay/Bulanao *(PESCP fieldwork; 11°45'N, 121°58'E)*
Two neighbouring coastal Barangays of Libertad, Antique, consisting mostly of rice and corn fields, coconut groves, and some sections of secondary growth.

Lahang *(PESCP fieldwork; November 1996, March-April 1997; 11°48' N, 121°59'E)*
Selectively logged primary forest on limestone, with some secondary forest at elevations from 450 to 500 m, accessed from Barangays Cubay/Bulanao, Libertad, Antique.

***Sibaliw** (PESCP fieldwork; from April 1997; 11°49'N, 121°59'E)*
Towards the western edge of the peninsular forest block, fairly extensive primary forest (including tall lawa-an dipterocarp) at the heads of Buruanga and Bulanao Rivers. One area of *c.* 20 ha between the rivers holds secondary forest and scrub, formerly farmed but mostly abandoned for the last twenty years. This area, part of Barangay Tag-osip, Buruanga, Aklan, has been the long-term research site of PESCP since April 1997, at elevations from 400-650 m.

Southeast Panay

Pedada and Canal Bays are large, sheltered soft shore bays with extensive exposed mudflats at low water. Both have large mature mangroves, but few young plants due to grazing by herds of goats. Immediately inland there are saline fish and shrimp ponds. Human activity on the seashore is common, mainly fishing and collecting of shellfish, and hunting occurs, but is not excessive. This type of coastline is common along the eastern shore of Panay.

Talangban is a hill on the southern edge of the semi-contiguous group of degraded forest patches known as Malayuan (Evans *et al.* 1993). The hill receives some protection locally due to superstitions. Hunting occurs, but is apparently not excessive as Long-tailed Macaques *Macaca fascicularis* and Visayan Warty Pigs *Sus barbatus cebifrons* both still occur (PA). Two to three teams of charcoal burners work the area, mainly harvesting trees 5-10 years old of *c.* 10 cm girth.

Culasi and Barotac Nuevo are areas with a variety of different habitats: dry hill grassland and scrub with patches of bamboo, degraded secondary forest patches, dry and wet paddy, paddy stubble, and irrigation canals, along with houses, market-gardens, duck ponds, etc.

Sampunong Bolo Bird Sanctuary is a relatively well-protected reserve close to the town of Sara, holding 18 ha of forest (Evans *et al.* 1993). Its main feature is a large Purple Heron *Ardea purpurea* colony, the only one known in the country. Huge roosts of fruit bats occur periodically, but are sometimes disturbed by local hunters. Puruguan Falls is a local beauty spot close to the town of Sara, 2 km from Sampunong Bolo Bird Sanctuary, consisting mainly of scrub and second growth.

Species accounts

We follow the most conservative approach, leaving to further confirmation those records which appear not to be sufficiently substantiated. Mist-netted birds were ringed, measured, photographed, and released (PESCP) or, in some cases, collected (DENR-JWRC). Identification in the field was based on du Pont (1971) and King *et al.* (1975). Additional information was later taken from museum specimens, and Brown &

Amadon (1968), Chantler & Driessens (1995), Hachisuka (1935), del Hoyo *et al.* (1994, 1996), Lekagul & Round (1991) and Svensson (1984). The taxonomy and order follow DKP. In most cases, the subspecies could not be established. We have specified where photographs were taken (photo), with copies available for inspection in the library of The Natural History Museum, Tring, UK.

New species for the Philippines

ASIAN STUBTAIL *Urosphena squameiceps*
One individual (Plate1) was captured by hand at 1930 h inside Station Sibaliw on 9 October 1999 (EC), apparently attracted by the lights. Measurements were: length 97 mm, wing 52 mm, tail 28 mm, tarsus 16.9 mm, bill length to distal nostril 8.2 mm, width at base 3.6 mm and culmen 2.9 mm, (all measurements similar to those taken on specimens of this species in the BNHM collection at Tring, JH), mass 9.5 g. This is the first record for the Philippines of this species which breeds in Siberia, Korea and Japan and winters in southeast Asia.

New species for Panay

JAPANESE NIGHT-HERON *Gorsachius goisagi*
An immature was mist-netted on 14 March 1995 in Hamtang (EC; photo), on a ridge above a dried-up river bed; identity was confirmed from a photograph by R.S. Kennedy (*in litt.*). This monotypic species is an uncommon winter visitor to the Philippines not previously recorded in March (DKP). Classed as Vulnerable, its status is declining in its East Asian breeding quarters (Collar *et al*. 1994).

SCHRENCK'S BITTERN ***Ixobrychus eurhythmus***
An individual flushed twice from wet paddy, where the rice was close to being harvested, in the valley floor of Malayu-an, on 10 March 1999. Identified by chestnut back, pale upperwing coverts and dark flight feathers (PA). A rare winter visitor to most major islands including Negros (DKP).

OSPREY *Pandion haliaetus*
Recorded in Aklan Province in Feb 1993 (DENR-JWRC); at least two, probably more, were at Culasi fishponds on 2 and 5 March 1999 and singles there on 8 March and 8-14 April 1999 (PA). An uncommon, mainly northern winter visitor to most major islands (DKP).

CRESTED GOSHAWK *Accipiter trivirgatus*
A large hawk perched at Talangban on 7 March 1999 was observed through a telescope at full frame size. The size, thick dark brown barring on the underparts, streaking on the upper breast and thick mesial stripe, confirmed it to be *Accipiter trivirgatus* (PA). Two birds displaying over hills near to Culasi, on 9 March 1999, in a circular flight with sharp fast wing beats and undertail coverts fanned out to show the prominent

white colour, were also considered to be this species (PA), as was a large, dark brown accipiter near the northeast coast at Bulanao on 15 Nov 1997 (JH). An uncommon resident on most major islands except Luzon (DKP).

JAPANESE SPARROWHAWK *Accipiter gularis*
A small accipiter was mist-netted in Lahang on 30 March 1997 (photo). Its body mass (90 g) and short wing length (152 mm) are indicative of a male *A. gularis* (92-192.5g and 160-198 mm respectively for *A. gularis*, *cf.* 140 g and 185-209 mm for *A. soloensis*, Brown & Amadon 1968) or *A. virgatus*. *A. virgatus confusus*, resident on the Philippines, also has a short wing (152-185 mm, Brown & Amadon 1968) but can be ruled out by the palish grey upperparts of our bird, the presence of a bright yellow eye-ring and the absence of a mesial stripe. The species has been recorded on widely separated islands from Luzon down to Mindanao and Sibutu (DKP). Although not listed for Negros (DKP), we caught a male at Patag (Negros Occ.) in 1995 (identity confirmed from photo by R. S. Kennedy, *in litt.*).

CHANGEABLE HAWK-EAGLE *Spizaetus cirrhatus*
Single fledglings of the light morph were obtained in 1998 by B. Engerer (pers. comm., photo in Curio 1999) and in 1999 by EC (from a private residence). They had been taken as *pulli* from nests on Mt Madja-as and from the eastern forest block of the NW Panay peninsula, respectively. One of them is in the custody of the PESCP and is being prepared for release. A light morph adult and juvenile were observed close together for at least half an hour in the coastal forest at Barangay Bulanao, Antique Province on 27 October 1999 (EC). Identification was based on bulky size, very short crest, and wings reaching halfway down the length of the tail (*versus* reaching only to the base of tail in *S. philippensis*). These are the first records for Panay, and it has only been confirmed breeding elsewhere in the Philippines on Mindanao and Palawan (Gamauf *et al.* 1998). The species has a wide distribution outside the Philippines.

PHILIPPINE HAWK-EAGLE *Spizaethus philippensis*
This species appears to have bred on Panay because two fledglings from the San Remigio area were acquired by Hon. Ezequiel Javier, the Governor of Antique Province, 3 or 4 years ago and the one still living is at his residence near San Jose (M. Ebreo, pers. comm.). A bird thought to be this species was observed perched at Sibaliw on 15 August 1997 (D. Allen, probable identity confirmed by A. Gamauf *in litt.*). Recent records of this Philippine endemic come only from Luzon and Mindanao, with distinct subspecies specific to these islands (Gamauf *et al.* 1998), although formerly from other islands including Negros. The taxonomic status of the Panay birds is unknown.

ORIENTAL HOBBY *Falco severus*
A pair of dark falcons, too small for *F. peregrinus*, was observed on 4 March 1996 in rapid, buoyant flight between Sitios Pandanan and Nawili on the denuded southern approaches to Hamtang (JH). An uncommon resident in open country and at the

forest edge on many Philippine islands; only one race (*F. s. severus*) has been recorded (DKP).

GREY PLOVER *Pluvialis squatarola*
12 flew south at Canal Bay on 8 March 1999 (PA). An uncommon passage migrant, rarer in winter, to most of the major islands (DKP).

KENTISH PLOVER *Charadrius alexandrinus*
30 at Pedada Bay on 5 and 12 March 1999, with 100 on 8 March, and 300 spread out along several kms of coast at Canal Bay on 8 March (PA). An uncommon winter visitor to most of the major islands (DKP).

EURASIAN CURLEW *Numenius arquata*
Four at Pedada Bay on 5 and 12 March and 20+ at Canal Bay on 8 March 1999 (PA). An uncommon passage migrant and winter visitor to most of the major islands (DKP).

RUFOUS-NECKED STINT *Calidris ruficollis*
Four at Pedada fishponds on 5 March and 20+ at Canal Bay on 8 March 1999 (PA). A common passage migrant and winter visitor to most of the major islands (DKP).

TEMMINCK'S STINT *Calidris temminckii*
Three at Canal Bay fishponds on 8 March 1999, identified by their similar size and gait to the 20+ *C. ruficollis* also present, their yellowish legs and greyish-buff upperparts and breast (PA). Although classed as a rare winter visitor by DKP, only known from Mindoro, Palawan and Luzon, it is doubtless a passage migrant too.

BLACK-WINGED STILT *Himantopus himantopus*
Six flew south of Culasi, Iloilo Province, on 14 March 1999 and 3 were at the same location on 24 March (PA). Uncommon, probably a winter visitor, reported from Mindoro, Palawan, Cebu, Negros, Mindanao and Luzon (DKP).

ORIENTAL PRATINCOLE *Glareola maldivarum*
One was at Barotac Nuevo on 21 June 1995 (PA). Fairly common, mainly as a passage migrant, but only on Luzon, Negros and Palawan of the major islands (DKP).

ROSEATE TERN *Sterna dougalli*
One was observed as close as 20 m flying north on the Panay side of the Guimaras Channel between Culasi, Panay and Victorias, Negros on 20 June 1995 (PA). It was in full breeding plumage with a red bill and rosy underparts. A rare breeder on Culion, Corregidor and Palawan, otherwise coastal and pelagic but no specific records mentioned (DKP).

WHISKERED TERN *Chlidonias hybridus*
Four Whiskered Terns in breeding plumage were observed on 17 June 1995, with two on 21 June, on the northern outskirts of Barotac Nuevo (PA). These are the first records for Panay and very late compared to previous reports from elsewhere in the country (DKP). Large numbers of *Chlidonias* terns were seen along the east coast between 1 March and 8 April 1999, and 28 January to 26 February 2000, all of which were considered to be *hybridus*, with a maximum of 200+ at Barotac Viejo on 1 March 1999 and 18 February 2000 (PA). Several *hybridus* were seen on passage, with 15-20 White-winged Black Terns *C. leucopterus*, above the Iloilo River from the beginning of April through to 25 May 1998 (A. Herzig, pers. comm.). Common coastal passage migrant to most of the major islands, recorded in every month except July and August (DKP).

BLUE-CROWNED RACQUET-TAIL *Prioniturus discurus*
This species was first recorded at Hanggod Tubig, Culasi, Antique Province, in December 1992 (DENR-JRWC). Several pairs at 900 – 1,100m in Hamtang Forest showed much activity in March 1996 at tree holes, including two woodpecker holes, one of which was also being investigated by White-bellied Woodpeckers *Dryocopus javensis*, and one broken branch (EC, YdS, JH photo). A pair took over a *D. javensis* nest-hole at Sibaliw in May 1998 (EC), and birds were frequently observed at Lahang (YdS). Two birds were confiscated from a market on the peninsula in 1998. Noted as fairly common up to *c.* 1,500m on most islands (DKP).

DRONGO CUCKOO *Surniculus lugubris*
One perched in bamboo at Malayu-an on 10 March 1999 - all black apart from pale undertail markings and with a small bill (PA). A fairly common resident on Luzon, Mindoro, Negros and Palawan of the major islands (DKP).

INDIAN CUCKOO *Cuculus micropterus*
Freshly plucked feathers were found at Lahang where two *Cuculus* sp. individuals had been seen the day before (E. Klop). According to R.S. Kennedy (*in litt.*), the feathers are 'with 95% probability' from *C. micropterus*, a species known to occur on Negros and several other islands in the country (DKP). *C. saturatus* has also been recently recorded on Panay by us and Miranda *et al*. (2000).

BROWN HAWK-OWL *Ninox scutulata*
One was seen at mid-day on 15 September 1995 in disturbed forest with climbing bamboo at 400 m above Alojipan (EC). An uncommon but widespread species with three endemic and two migrant forms known in the Philippines.

ISLAND SWIFTLET *Collocalia vanikorensis*
One was mist-netted at Hakot at 700 m on 7 May 1996 (YdS, LL photo), its identity being confirmed by R.S. Kennedy (*in litt.*) from our description and photograph. Tail

length (53 mm) and depth of fork (7-8 mm) also permit distinction from the visually similar *C. mearnsi* with 45-52 mm and 5.8-6.3 mm, respectively. Wing length (119 mm) does not (*mearnsi* 106-119.5 mm, *vanikorensis* 118-125 m) (Chantler & Driessens 1995). As expected, the specimen falls within the measurements of race *C. v. amelis* in regard to wing length, whilst tail dimensions do not allow distinction from the larger *C. v. palawensis* of Palawan, the only other Philippine race (Chantler & Driessens 1995). The bird weighed 12.7g. This constitutes the first record from the West Visayas, although the species is known from adjacent Luzon, Mindoro, Cebu, Bohol and Mindanao (DKP).

PHILIPPINE NEEDLETAIL ***Mearnsia picina***

One was observed flying over Talangban on 20 June 1995 and sketched at the time (PA). A fairly common but local resident to Leyte, Mindanao, Cebu, Negros, Biliran and Samar (DKP).

HOODED PITTA *Pitta sordida*

One was heard and seen at Lahang in March 1997 and another found roosting on a branch *c.* 3 m up in Bulabog Putian Natural Park in December 1997 (S. Luft, photo). One was seen standing in front of an empty nest at Sampunong Bolo Bird Sanctuary on 3 July 1997 (PA). The nest, which probably belonged to this bird, was of a similar structure to that of Red-bellied Pitta *Pitta erythrogaster* (which also frequents this area), i.e. spherical with a hole on the side, and was at the base of a clump of bamboo. Presumably the nominate race, a locally common resident to most of the major islands except Palawan where there is a different race (DKP).

ORIENTAL SKYLARK ***Alauda gulgula***

This species appeared to be common in the southeast in dry and damp paddy areas, with singing birds noted throughout the period February – June (PA). Locally common resident to Bohol, Mindanao, Negros and Luzon of the major islands (DKP).

SCALY GROUND-THRUSH *Zoothera dauma*

One was flushed twice from the main trail above Sibaliw at 560 m on 28 November 1997, identified as a large thrush with scaly brown plumage and whitish outer tail tips (JH). Its presence coincided with the appearance of an Olive Tree-Pipit *Anthus hodgsoni* and snipe *Gallinago* sp. during heavy rain. Uncommon winter visitor, usually above 1,000m, only reported from Luzon, Mindoro and Palawan of the major islands (DKP).

GOLDEN-BELLIED FLYEATER *Gerygone sulphurea*

Noted as common in the mangroves of Pedada and Canal Bays since at least June 1995, with an adult feeding a juvenile on 21 June 1995 near Culasi, Iloilo Province (PA). Locally common but only on Luzon, Mindoro, Mindanao, Negros, Bohol and Cebu of the major islands (DKP).

LEMON-THROATED LEAF-WARBLER *Phylloscopus cebuensis*
One bird was seen in the College of Agriculture and Forestry Forest Reserve, Lambunao, Iloilo Province, in February 1995 (EC). It was distinguished from *P. trivirgatus, P. olivaceus* and *P. borealis* by its yellow face, chin and throat, contrasting with the rest of the plumage. Common on Luzon and occurs less commonly on Cebu and Negros (DKP).

NARCISSUS FLYCATCHER *Ficedula narcissina*
Single female and immature males were mist-netted (photo) at Sibaliw on 21 and 24 November 1997, respectively, and an adult male seen on 25 November (JH). All appeared to be of the nominate race as they were clearly not *elisae*, which is visually distinctive, while the third race, *owstoni*, is confined to the southern Ryukyu Islands of Japan (Brazil 1991). A rare winter visitor, recorded on Luzon, Mindoro, Mindanao, Negros, Cebu and Palawan of the major islands (DKP).

OLIVE TREE-PIPIT *Anthus hodgsoni*
One was seen on several days from 13 March 1996 in a dry river bed at Hamtang, and presumably the same bird was mist-netted (photo) on 23 March (JH). A second individual was mist-netted (photo) in secondary growth at Sibaliw on 23 November 1997, and five days later another was observed there, apparently forced down by rain while migrating over (JH). Two subspecies are uncommon winter visitors in the Philippines, of which *A. h. hodgsoni* was previously known to occur on Negros (DKP).

CRESTED MYNA *Acridotheres cristatellus*
Recorded in the lowlands of Antique Province in December 1992 and Aklan Province in February 1993 (DENR-JRWC) but strangely not noted since. This species was introduced from Luzon and had spread to Negros by 1970 (Rabor *et al.* 1970).

BICOLOURED FLOWERPECKER *Dicaeum bicolor*
Recorded at Hanggod Tubig, Culasi, Antique Province in December 1992 and mist-netted in February 1993 in Aklan Province (DENR-JRWC). Several were observed at Sibaliw in May 1997 (B. King) and during the period 14 November – 5 December 1997 (JH). Fairly common in the Philippines, with 3 endemic races including *viridissimum* from Negros and Guimaras (DKP), which is presumably the race on Panay.

EVERETT'S WHITE-EYE *Zosterops everetti*
Singles at Talangban on 22 June 1996 and Puruguan Falls on 3 July 1997, identified by eye ring broken above lores, yellow on throat and belly, extending as a stripe to the yellow undertail coverts, and prominent grey flanks (PA). Common with five races but on the major islands only recorded on Cebu, Siquijor, Bohol, Leyte, Samar and Mindanao (DKP). Hence the race occurring on Panay is of interest.

GREEN-FACED PARROTFINCH *Erythrura viridifacies*
Two all green *Erythrura* with red tails were mist-netted (photo) at Hakot at 700 m on 5 and 6 May 1996 (YdS) and at Sibaliw on 19 July 1997 (EC). The last bird had upper tail coverts and central rectrices red, but outer tail feathers green. There were no sightings during months of fieldwork at the latter site but two were seen at the Bulanao River near Cubay (open groves, bush and bamboo) in May 1998 (A. Herzig, PESCP). Described as uncommon on Luzon and Negros (DKP), and Endangered by Collar *et al.* (1994) on the basis of only three recent records (see also Allen 1999).

Records of new species for Boracay

EURASIAN KESTREL *Falco tinnunculus*
A small falcon was observed in typical *tinnunculus* hovering flight over the golf course on Boracay Island on 8 December 1997 (JH). An uncommon winter and passage visitor with records from Luzon, Palawan, Busuanga, Batan and Mindanao (DKP).

GREAT-EARED NIGHTJAR *Eurostopodus macrotis*
One or two were calling at two locations and one was seen in flight on north Boracay on 7-8 December 1997 (JH). A fairly common local resident on Luzon, Mindanao, Mindoro, Leyte, Bohol and Samar, of the major islands, but not Negros (DKP).

Additional observations of interest

[BLACK BITTERN *Ixobrychus flavicollis*
A heron, flushed from dense scrub by fishponds at Culasi, Iloilo Province, on 22 June 1996 appeared to be completely black on the upperparts and head, with dark legs and feet (PA). It flew low with frequent wing-beats like the small herons, rather than slower like egrets *Egretta* sp. It was thought to be *Ixobrychus flavicollis,* an uncommon and local resident on Cebu, Luzon, Mindanao, Samar, Mindoro, Batan, Siargao and Negros (DKP).]

PEREGRINE FALCON *Falco peregrinus*
Miranda *et al*. (2000) reported a single bird in flight on 28 February 1993, the first and only record for Panay. A pair was resident in March 1996 on a high cliff, at 950 m a.s.l., overlooking a steep mountain valley now mostly denuded and located immediately south of Hamtang (JH *et al.*). As these were very dark birds, they were probably *F. p. ernesti*, the resident subspecies recorded widely throughout the country (DKP).

PHILIPPINE FROGMOUTH *Batrachostomus septimus*
Colour dimorphism is known for the subspecies *B. septimus septimus* and *microrhynchus*: 'mottled' and 'chestnut', with intermediates, at least for the former; its occurrence is not recorded in the third form, *menagei*, endemic to Negros and Panay (del Hoyo *et al* 1999). We mist-netted two individuals of an intermediate variety in which the grey/black vermiculation was replaced by beige/black, and

photographed a greyish bird, possibly an intermediate form, in the field at Sibaliw in 1999. One of the trapped birds was a male, with buffy scapulars throughout, and the other unsexed. This colour variation is not related to sex as differences in plumage have already been established for the two sexes (del Hoyo *et al* 1999).

[ORIENTAL/ CLAMOROUS REED WARBLER *Acrocephalus orientalis/ stentoreus*
A large *Acrocephalus* warbler, observed singing in mangroves adjacent to fishponds at Pededo Bay on 12 March 1999, was of interest as neither of the possibilities, *orientalis* and *stentoreus* are known from Panay. It was thought to be *stentoreus* on the basis of short primary projection, long tail and buff underparts (PA). *A. orientalis* is a fairly common winter visitor to Luzon, Mindoro, Mindanao, Negros, Cebu and Palawan of the major islands but *A. stentoreus* is an uncommon resident, of endemic race *harterii*, and only recorded on Luzon, Mindoro, Mindanao, Bohol and Leyte, not Negros (DKP).]

WHITE-THROATED JUNGLE-FLYCATCHER *Rhinomyias albigularis*
One was mist-netted in Hamtang Forest at 900m on 4 March 1995 (EC photo) and 3 were trapped and ringed there at different sites at 920-960 m in March 1996 (JH photo). Seven were trapped at Sibaliw at 400-500 m between 17 November and 5 December 1997 (JH photo) and others seen there at different times of the year (D Allen, B King, P Morris pers. comm.). It therefore appears that there is a viable population at Hamtang and Sibaliw. Seven specimens were taken in the Central Panay mountains by Miranda *et al.* (2000). Collar *et al.* (1994) described the species as 'critically endangered' because the only recent records were at two sites on Negros and it was thought to need forest below 900 m, which has virtually disappeared on Negros and Guimaras, the only islands from which it was known.

Discussion

Miranda *et al.* (2000) documented 37 new records of birds for Panay, of which we recorded 19 during our studies, in addition to the 35 new records reported here and one reported previously (Klop *et al.* 1998). Sixty-five of these 73 species are also known from Negros (DKP) and are therefore not unexpected. One, *Gallicolumba keayi*, is now so rare on Negros that it has been classified as 'critically endangered' (Collar *et al.* 1994), while *Erythrura viridifacies* has been moved from this category to 'endangered' in the light of our findings (Collar *et al.* 1999). The additional species reported here and by Miranda *et al.* (2000) increase the number of resident species known from Panay from 132 to 173, compared to 190 on Negros, with the number common to both islands rising from 135 to 172. Hence, the avifaunal similarity index (2 x C / (N + P), where C is the number of species common to both islands, N and P the number on Negros and Panay respectively - see Krebs 1972) for residents increases from 0.84 to 0.95. We consider that this comparison is most meaningful if restricted to resident species, i.e. if migrants, which could occur almost anywhere, are excluded.

Five new Panay species have not been reported from Negros (nor have *Falco tinnunculus* and *Eurostopodus macrotis* from nearby Boracay), bringing the total of these to 16 including three reported by Miranda *et al.* (2000). Of these, *Collocalia vanikorensis* is wide-ranging, as are *Falco tinnunculus* and *Eurostopodus macrotis*, and therefore are not unexpected. Similarly, *Urosphena squameiceps* and *Zoothera dauma*, being winter visitors to southeast Asia, are not unexpected vagrants. *Zosterops everetti* has possibly been overlooked on Negros as it occurs on nearby Cebu and Siquijor. Given the small size of the remaining forest (some 500 km″), both hawk-eagles (*Spizaetus philippensis*, which does occur on Negros, and *S. cirrhatus*), although thought to be greatly under-recorded (D. Allen *in. litt.*), may be unable to sustain stable populations on Panay. Yet two breeding records of *S. cirrhatus*, each time ending in the robbery of one, probably the only, nestling, in different areas of Panay may indicate some permanence.

Both our discoveries and those of Miranda *et al.* (2000) give some hope that the conservation status for some of the endangered species is not as acute as feared. This applies to *Gallicolumba keayi* (critically endangered), while *Rhinomyias albigularis* and *Erythrura viridifacies* have now been reclassified as 'endangered' (Collar *et al.*1999). These are elusive species that scarcely hold their ground on Negros. However, there is no reason for complacency since the taxonomic status, including the genetic differentiation of populations shared by the two islands, is still unexplored. Nonetheless, both the discoveries and the presence of critically endangered species, the two Visayan hornbills included (Klop *et al.* 2000), will help catalyse the gazetting of natural park areas on Panay (Curio 2000).

Acknowledgements

The project was funded by the Frankfurt Zoological Society, with additional support from the Andreas-Stihl-Stiftung, the EU, the German Ornithologists' Society, the Ministry of Science and Research of the land North Rhine Westfalia, and a generous donation from Prof. Dr Dr mult. h.c. Ernst Mayr, Cambridge, Mass. The Protected Area and Wildlife Bureau of the DENR (Director Wilfrido S. Pollisco, then Director R. C. Bayabos), the Negros Forest and Ecological Foundation (President Mr Gerry Ledesma), Raoul Geollegue (Regional Executive Director of DENR Reg. VI), West Visayas State University (President Dr Bernabe Cocjin) and Thorsten Hahn (address as EC) provided advice and support throughout. Helga Schulze helped ably with artwork and computer graphics. Stefan Luft provided the photographs of the Asian Stubtail. Robert Prys-Jones arranged for the archiving of photographs at Tring. We also thank DENR-JRWC (Arvin Diesmos) and Ben King for contributing valuable records, Edward Dickinson and Robert Kennedy for answering numerous queries, and Des Allen for useful comments on the manuscript and the record he contributed.

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Notes on the poorly-known Buckley's Forest Falcon *Micrastur buckleyi* including voice, range and first Brazilian records.

by Andrew Whittaker

Received 29 March 2000

Buckley's Forest Falcon *Micrastur buckleyi*, also known as the Lesser Collared Forest Falcon, is one of the world's least known raptors, represented by only eleven known museum specimens (Collar *et al*. 1992). The type specimen was collected in 1888 from Sarayacu, Pastaza, Ecuador. Poor taxonomic understanding led it to be initially described as a race of Collared Forest Falcon *Micrastur melanoleucus* (= *semitorquatus*). Swann (1919) separated it from nominate *semitorquatus* on the basis of its smaller wing and tarsus, with feet being smaller and weaker. However, Traylor (1948) confirmed that *M. buckleyi* was a valid species, not only being smaller than *M. semitorquatus* in all dimensions with proportionately a much shorter tarsus, but also that it occurred sympatrically. The scarcity in collections of *M. buckleyi*, most of which were obtained historically (only two recently in 1977-78), combined with it being virtually unknown to Neotropical field ornithologists and having a restricted distribution in western Amazonia, led it to be listed as "threatened" (Collar *et al*. 1992). Here I present the first description of the species' voice, information on plumage, insight into its biology and new distributional records including the first records for Brazil.

Micrastur forest falcons are found exclusively in the Americas, inhabiting Neotropical rainforests ranging from Mexico south to northern Argentina (Brown & Amadon 1968, del Hoyo *et al*. 1994). Forest falcons are well adapted to their forested environments with long graduated tails and short rounded wings, allowing rapid flight and good manoeuvrability while hunting in thick undergrowth. Long strong legs allow greater agility within thick vegetation for running along branches or on the ground after prey (Thorstrom 1993). A combination of inhabiting dense forests, not known to soar or perform aerial displays and their elusive nature makes *Micrasturs* very inconspicuous, and therefore easily overlooked (Thiollay 1985). In fact *Micrastur*s are far more often heard than seen, vocal activity being principally around dawn and dusk. This habit is comparable to other rarely seen but regularly heard Neotropical forest dwellers, such as Tinamous, *Tinamus* and *Crypturellus* and Antpittas, *Grallaria* (pers obs).

Taxonomy and identification

The genus *Micrastur* currently consists of 6 species of forest falcon (Brown & Amadon 1989, Sibley & Monroe 1993, del Hoyo *et al*. 1994), which can be subdivided into two groups based on size. Large *Micrastur*s comprise Buckley's Forest Falcon *M. buckleyi*, Collared Forest Falcon *M. semitorquatus*, and Slaty-backed Forest

Falcon *M. mirandollei*, and small ones are Lined Forest Falcon *M. gilvicollis*, Barred Forest Falcon *M. ruficollis*, and Plumbeus Forest Falcon *M. plumbeus*.

Micrastur buckleyi is physically very similar to the larger *M. semitorquatus* but the lack of a large museum series, combined with a complete lack of any knowledge of the birds' biology, have combined to cause the taxanomic confusion. Traylor (1948) discovered that *M.buckleyi* deserved full species status while identifying a collection made by José M. Schunke in 1946 from Yarinacocha, Lorento Peru. He based his conclusion on three skins, one in the Chicago Natural History Museum (CNHM), from Yarinacocha, Peru and two from the American Museum of Natural History (AMNH), from eastern Ecuador, Rio Suno and San José.

The main morphological features separating the two species are size, principally in wing length and a proportionately shorter tarsus. A comparison of measurements from eleven male and ten female *M. semitorquatus* from Peru, Brazil and Bolivia with 4 male and one female *M. buckleyi* illustrates this smaller size difference well (Table 1). The bill also seems to be smaller in *M. buckleyi* (culmen of type 16mm) than in *M. semitorquatus,* (average 20 mm; n = 11, range 19-21 mm, Amadon 1964).

Given the striking similarities between *M. buckleyi* and *M. semitorquatus* in adult plumage, as well as poorly understood age-related plumage differences, great care is needed in field identification. Important field marks, e.g. the number of tail bars and the type and pattern of underpart markings, are highly variable in immature and subadult plumages of other *Micrasturs*. Also, *M. semitorquatus* shows great plumage variation with three distinct colour morphs in adult plumage: light morph (most common), rufous or buffy morph and a rare dark morph. No such colour morphs are yet known from *M. buckleyi* but with such a small sample this possibility remains to be determined.

Amadon's (1964) description of the first known female and immature plumages follows, with additional information I have noted from slides of specimens. The female (AMNH No. 230774) has conspicuous white marks on the scapulars. Two of these are near the tip of each feather and are oval in shape, while two others, half-concealed near the middle of the feather, are crescentric. There are also roundish white markings on the outer vanes of the secondaries and on a few of the upper wing coverts. *M. semitorquatus* never shows any white markings on scapulars and secondaries. The immature male (AMNH No. 181867) had the following distinctive

TABLE 1

Summary of biometrics of *M. buckleyi*, with its sister species *M. semitorquatus*. Each data set includes mean, range and sample size. Wing measurements are flattened chord.

Species	Wing	Tarsus
M. buckleyi (male)	213.25; 209-219;4	58.75; 55-62; 4
M. semitorquatus (male)	247.0; 237-257; 11	87.0; 82-91; 11
M. buckleyi (female)	217; 1	65.0; 1
M. semitorquatus (female)	267.0; 257-281; 10	87.0; 82-94; 10

plumage characters separating it from immature *M. semitorquatus*. Chest uniform tawny, with vaguest suggestion of blackish marks near the tip of the feathers and no barring, whereas *M. semitorqutus* underparts are tawny or buffy and boldly barred with crescentric blackish marks. Immature *M. buckleyi* has a rufous nuchal collar (tawny or buff in *M. semitorquatus*) and chest with which it is continuous. Under wing coverts and linings white, washed with buff, and with only the slightest indication of dark markings, whereas *M. semitorquatus* has conspicuous black or dark brown cross markings.

Useful field marks for *M. buckleyi* are its overall smaller size with a noticeably proportionately smaller head (pers. obs), and adults show three broad white tail bars, not including the buff/white pale terminal tail fringe. However, the number of tail bars can vary with age in *M. buckleyi* with sub-adults showing as many as 4 or as few as 2 broad white bars, not including terminal fringe. This field character can also be rendered difficult since wing tip projection can cover the uppermost tail bar, obscuring it from view in the field. *M. semitorquatus* adults normally show 3 tail bars, while immatures have from 4 to 6 white/buff tail bars, not including the terminal tail fringe. Female *M. buckleyi* show diagnostic white spots on the scapulars and secondaries, as previously described. Immatures have a striking bright tawny upper breast band and nuchal collar and duller rufous upper breast band, contrasting with buff throat and lower underparts with 4-5 widely spaced bold brown bars onto lower breast; remaining lower underparts are unmarked or the barring is less bold but extends down the flanks and thighs, being absent from the centre of lower underparts, with browner/blackish tail and bolder buffier tail bars and terminal tail fringe.

In Peru I noted the following description in the field from *M. buckleyi*: upperparts dark grey on both back and wings, contrasting with darker hood; tail slightly darker than back with 4 obvious white transverse tail bars, but upper band sometimes obscured by wing tips; tail with a terminal white fringe. Cere and lores yellow; bill dark grey/black, looking smaller in proportion to *M. semitorquatus*; eyes dark brown with bare yellow orbital skin and eyebrow. Underparts creamy white; yellow legs brighter than cere; white neck collar very broad and prominent; dull white ear coverts. This plumage most probably refers to a sub-adult male.

Vocalizations

The voice of *M. buckleyi* remained unknown to ornithologists until very recently, being confused with other *Micrastur* species, until Paul Coopmans (pers. comm.) tape-recorded the species' voice on 20 November 1993 at Sacha Lodge, Rio Napo, Ecuador. Voice recognition of *M. buckleyi* since has increased field records of this little known forest falcon in the past decade. Here I present the first detailed description of *M. buckleyi* vocalizations and include spectograms of its vocal repertoire (Fig. 1).

M. buckleyi, as with most *Micrastur*s, calls mainly *c*. 30 min leading up to dawn with a smaller peak around dusk (Thorstrom 1993). The pre-dawn calling period can be weather-dependent, dark skies often resulting in much less vocalization. This pattern of intense crepuscular vocal activity is clearly illustrated in *M. gilvicollis* in

Brazil, with 73% of all recorded calls between 0535-0555 h and 22% between 1745-1808 h during 41 days of dawn to dusk observations on four different adults (Klein & Bierregaard 1988).

Calls identified to date are:

Territorial advertising song

M. buckleyi's "territorial advertising song" is the most commonly heard call and consists typically of 2 loud notes "EEOK, OOW" (Fig. 1, C & E) or 3 loud notes "EEOK, OOW, ...ow" (Fig. 1, A & B). This can be described as a 2- or 3-note loud nasal call with a somewhat echoing quality, the first note more emphatic than the second and there is a marked pause before the third, which is quieter. Fig. 1 shows slight individual variation between two different birds. The slight differences in pitch are probably related to sex, the smaller males producing higher frequency notes than the larger females (pers. obs). Pairs may sing a "territorial advertising song" perched either closely together or widely apart (several hundred metres), the first bird using the 2-note call, while its mate joins in with a 1-note call. This gives the impression (from a distance) that only one bird is producing the 3-note version of the call. The pair call antiphonally and can continue for well over a minute. Another variation involves both birds using the 2-note song type.

Excited territorial calls

These calls are usually given during intraspecific territorial conflict or are often solicited by tape playback to a lone bird or pair, similar to the behaviour of *M. ruficollis* (Thorstrom 1993). This call (Fig. 1, D &.F) is a fast series of regularly spaced short notes varying in number (12-30), which gain gradually in volume, ending with two emphatic loud notes with a pause between them. "............uk-uk-uk-uk-uk CAHO', ...OW". The long string of call notes sound almost like week laughter and could possibly be confused with a Laughing Falcon *Herpetotheres cachinnans*, or a female *M. semitorquatus* at the nest site (Thorstrom *et al.* 2000a,b). The intensity and number of notes can vary greatly after repeated tape playback, with more agitated birds adding more notes (Fig. 1, F), but all series always end with the louder emphatic two notes.

Territorial duet

This vocalization (Fig. 1, G) is heard mostly around dawn, with one of the pair starting with "excited territorial calls"; then its mate joins in with the 3-note "territorial advertising song". These calls are heard in territorial conflict, as well as being solicited by tape playback.

Food Begging Calls of young

These calls, recorded by J. Arwin, comprise of a persistently repeated series of short hollow notes "ow,ow,ow,OW,OW,OW,OW,OW,OW,OW,OW,OW,OW,ow,ow". The number of notes in each series varied from 14-17, lasting 8 or 9 seconds, and was repeated every 15-18 seconds for extended periods of over a couple of minutes.

The "territorial advertising song" is the principal and most commonly heard vocalization of *M. buckleyi*, and is distinguished from all four other sympatric *Micrastur* species "territorial advertising songs" as follows:

M. gilvicollis

This species' "territorial advertising song" is a repeated 2-note, rarely 3-note, lamenting bark "ar, há". Although *M. buckleyi*'s voice differs having longer phrases that are lower pitched, more widely spaced and much louder, *M. gilvicollis* is vocally the

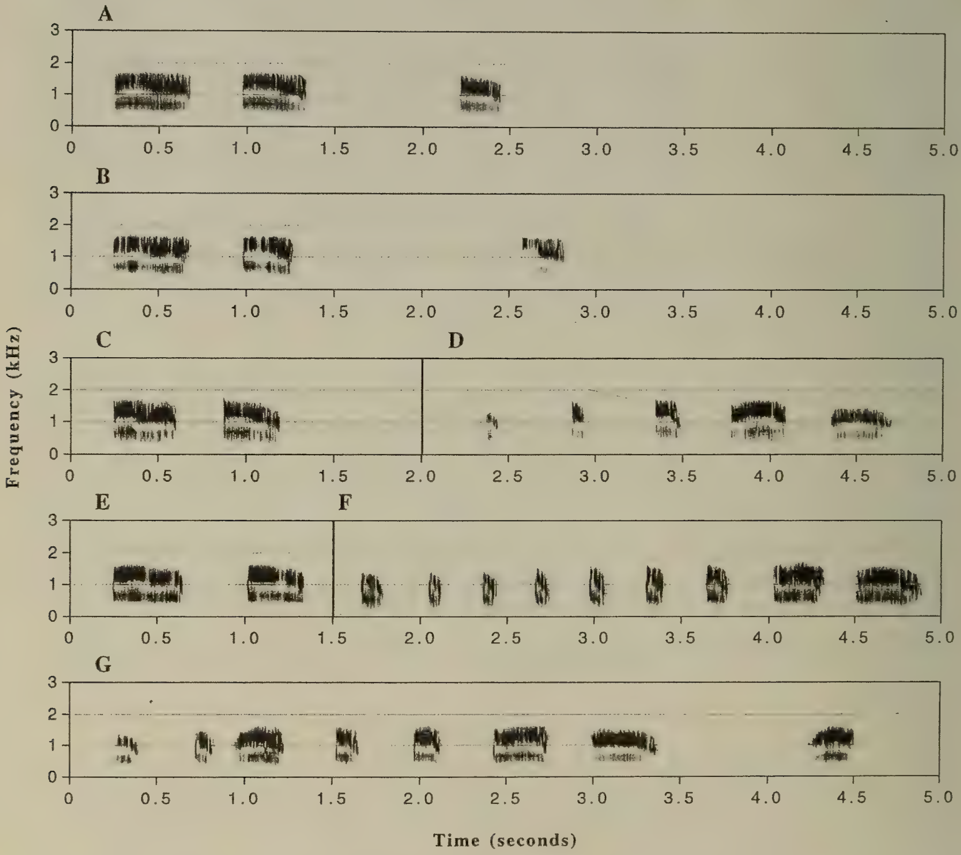


Figure 1. Spectograms of *M. buckleyi* vocalizations. All recordings by the author. (A) 3-note "Territorial advertising song" Rio Pichana, Lorento, Peru, 21 May 1998. (B) 3-note "Territorial advertising song" Rio Amonia, Acre, Brazil, 15 December 1995. (C) 2-note "Territorial advertising song" Rio Bajé, Acre, Brazil, 15 December 1995. (D) "Excited territorial call" Rio Amonia, Acre, Brazil, 15 December 1995. (E) 2-note "Territorial advertising song" Rio Amonia, Acre, Brazil, 15 December 1995. (F) "Excited territorial call" of single bird in response to tape playback, Rio Amonia, Acre, Brazil, 15 December 1995. (G) "Territorial duet" of a pair of birds, Rio Amonia, Acre, Brazil, 15 December 1995.

most readily confused *Micrastur* with *M. buckleyi*. However, *M. buckleyi* gives the diagnostic 3-note call with the distinct long pause before the last note (Fig 1, & B).

M. semitorquatus
The "territorial advertising song" is a slowly repeated single loud hollow note "cow...cow...cow..." (Hilty & Brown 1986). Although morphologically the most similar to *M. buckleyi*, this difference in call is diagnostic.

M. mirandollei
This species' "territorial advertising song" is a series of 9-14 repeated, drawn out nasal notes, "ah, AAH, AAH, AAH, AAH, AAH, AAH, AAH, AHH", strikingly different from *M. buckleyi*.

M. ruficollis
The "territorial advertising song" is a long repeated series of distinct sharp barks that are often tirelessly repeated at short intervals, "ow, ow, ow, ... ", diagnostically different.

Distribution

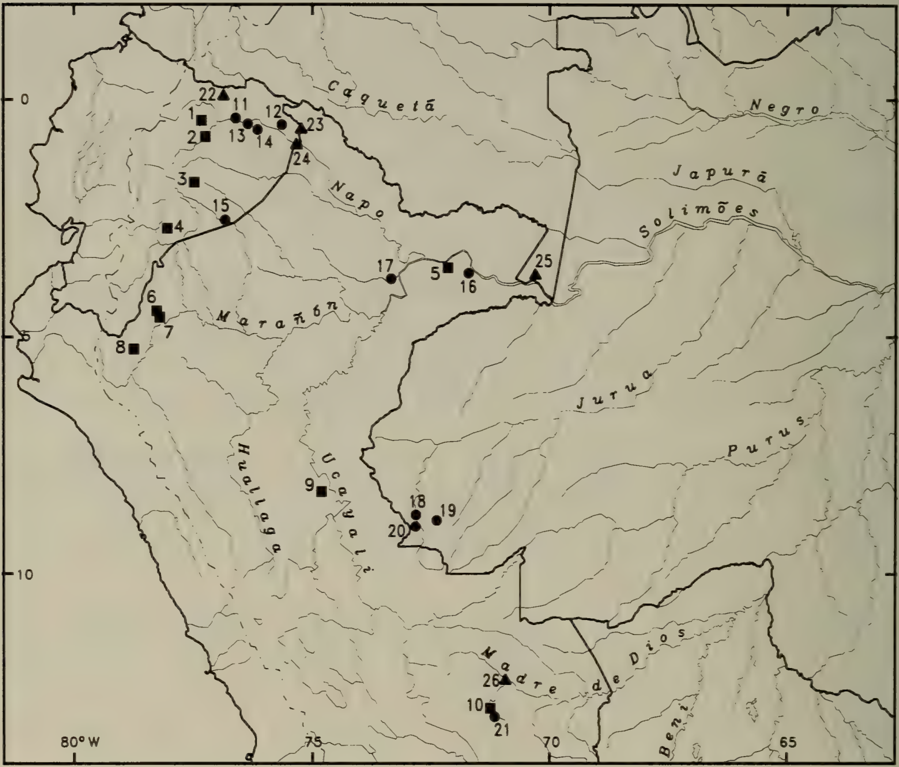
Previously, *M. buckleyi* was known to occur in the tropical lowlands of western Amazonia, east of the Andes in Amazonian Ecuador and Peru and with a single hypothetical record from southeastern Colombia north of the Amazon (Hilty & Brown 1986).

Present records of *M. buckleyi* (Fig. 2) are exclusively from the lowland tropical rainforests. However, two skins in the British Natural History Museum, Tring, collected by L. Gómez in 1938 from the Cordillera de Cutucú, labelled at 1,800 m, are dubious as regards locality and probably come from a collection point also within the lowlands (Robert Ridgely pers. comm.).

The following observations confirm the occurrence of *M. buckleyi* in Brazil, all from the western-most Amazonian state of Acre and obtained during avian inventories along the Rio Juruá, between July 1991 and May 1995 (Whittaker & Oren 1999). I made tape recordings in the field using a Sony TCM 5000EM with a Senhiesser ME 60 directional microphone, and observations were carried out with 10X40 binoculars. All tape recordings will be deposited in the British Library National Sound Archive, London, UK.

1. An individual was tape-recorded at 0650 h (dawn) on 6 February 1992 at Porongaba, Acre on the east bank of the Rio Juruá. The bird was singing a " territorial advertising song" *c.* 200 m from the river bank in mature lowland transitional forest.
2. An individual was tape-recorded and observed while singing the "territorial advertising song" at 0645 h on 15 May 1995 at Seringuerinho in terra firme forest on the Rio Bajé, an east bank tributary draining into the upper Rio Juruá.
3. An individual was tape-recorded on 15 December 1995 in the late afternoon on the Rio Amonia, a tributary on the west bank of the Rio Juruá. This bird remained

hidden from view in a disturbed forest edge 250 m from the river. The terra firme forest here had a greater relief and large amounts of *Guadua* bamboo in the understorey. The following pre-dawn, at about 0630 h, I made another tape recording from the same locality and after tape playback a territorial pair of birds approached to within 100 m and I tape-recorded the pair dueting (Fig. 1 G).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Napo
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Figure 2. Geographical range of *Micrastur buckleyi*. Occurance at all points is shown by the following symbols: Voucher museum specimen = black square, voucher tape recording = black circle, hypothetical sight record = black triangle.

1- San José de Sumaco, Napo (Ecuador), 2- Rio Suno (Ecuador), 3-Type Pastaza (Ecuador), 4-Cordillera de Cutucú (Ecuador), 5-Orosa (Peru), 6-Kusú (Peru), 7-Rio Cenepa (Peru), 8-Perico(Peru), 9-Yarinacocha (Peru), 10-Hacienda Villacarmen (Peru) 11- La Selva Lodge (Ecuador), 12- Rio Pacuyacu (Ecuador), 13- Rio Napo, Sacha Lodge (Ecuador), 14-Tiputini (Ecuador), 15-Kapawi Lodge, Rio Pastaza (Ecuador), 16- Rio Pichana (Peru), 17-Iquitos, Amazonas (Peru), 18-Porongaba (Brazil), 19- Seringuerinho (Brazil), 20-Rio Armonia (Brazil) 21-Hacienda Amazonia, Atalaya (Peru), 22- Lago Agrio (Ecuador), 23- Lagartococha (Ecuador), 24-Rio Aguarico (Peru), 25- Rio Amacayacú (Colombia), 26- Boca de Manu (Peru).

4. J. Minns and R. Parrini (pers. comm.) tape-recorded one unknown *Micrastur* species at 0605 h on 14 September 1999 at Foz do Breu, Rio Tejo, an east bank tributary of the Rio Juruá, Acre, which I later confirmed to be *M. buckleyi*.

During fieldwork at Porongaba I recorded *M. semitorquatus* not only sympatric with *M. buckleyi* but syntopic, and at Quieto, along the Rio Amonia, I recorded all three large *Micrastur* species occurring sympatrically. The two smaller and more common *Micrastur*s, *M. ruficollis* and *M. gilvicollis* were also observed and tape-recorded from the extractive reserve, confirming that 5 species of *Micrastur* can be found sympatrically in Brazil in lowland terra firme forest along the upper reaches of the Rio Juruá. This I believe is the first documentation of a site containing five *Micrastur* species.

In addition, I include two new sight records of *M. buckleyi* from Peru:

1. I heard a distant *M. buckleyi* at dawn, 0600 h, on 20 May 1998 singing its "territorial advertising song" (Fig. 1 A) from terra firme forest on the south bank of the Amazon near the mouth of the Rio Pichana, Lorento department. After recording the bird's song and giving it c. 2 min of tape playback, I observed nothing until a group of Black-chested Moustached Tamarin *Saguinus mystax* gave their high-pitched alarm notes indicating an approaching predator. I then located a motionless forest falcon perched 25 m up on a dead snag in the canopy. After a short period a second bird, probably its mate, started to call from a concealed perch nearby.
2. At 0600 h on 7 April 1999 I recorded the 3-note "territorial advertising song" of a bird on the north bank of the Amazon river, in secondary growth bordering terra firme forest in a sandy belt region, 15 km north of the city of Iquitos, Lorento department.

These new records from Brazil extend the known range of *M. buckleyi* south of the Amazon east into Amazonian Acre, where it is confirmed as a territorial resident. However the exact eastward extent of its range within Brazil remains to be determined. *M. buckleyi* may well range further east into at least the upper Rio Purús drainage and possibly even extending into the Amazon of north western Bolivia.

The published records of *M. buckleyi* for Brazil reported in Collar *et. al* (1992) were erroneous and subsequently withdrawn by Wege & Long (1995). After closer examination of the Acre specimen reported by Collar, comparing it with the type specimen *of M. buckleyi*, it was confirmed to represent a previously unknown subadult plumage of a female *M. ruficollis concentricus* (pers. obs).

Behaviour

Encounters in the field with *M. buckleyi* within its forested environment are rare; it is an inconspicuous and elusive raptor. The few observations I made were of calling individuals or pairs, particularly after tape playback around dawn. A typical response to tape playback entices a lone bird or a territorial pair to approach silently, out of view in the thick cover in the sub canopy. On a perch they remain still and silent, watching, and are therefore easily overlooked. However, after a delay from 10-15 minutes they sometimes start calling again, giving away their presence.

One vocalizing bird, observed in early morning as it perched on top of a dead snag over 20 m high in the sub-canopy of terra firme forest at a man made edge, threw it's head backwards c. 40 degrees each time it emitted the 3 note "territorial advertising song", lowering its head to a normal position between calling bouts. Another individual, seen flying a short distance through the canopy, upon landing on a dead stump shook its long graduated tail and then pumped it downwards towards the body a few times while looking around. After settling down on the perch the bird held its tail down vertically and then pushed it *c.* 10-15 degrees towards its body, holding it in this position.

J. Arwin (pers. comm), observed an adult *M. buckleyi* perched 1 m above an active army ant swarm at Tiputini, Ecuador. Other attendant obligate army ant birds, Sooty Antbirds *Myrmeciza fortis* and Goeldi's Antbirds *M. goeldii*, were following the front of the swarm along with several woodcreepers (Dendrocolaptidae), and all ignored the raptor's presence. This suggests that *M. buckleyi* was not hunting for birds but either reptiles or larger insects fleeing from the swarm. This behaviour has been noted for other forest falcons (Willis *et al.* 1983).

Nothing is known of the breeding of *M. buckleyi,* although J. Arwin (pers. comm.), reported two or possibly three fledged young and two adults at Tiputini Biodiversity Center, Ecuador, in August 1995 but the nest was not seen. The fledglings gave distinct "food begging calls" from the canopy of emergent trees. The young did not respond to tape playback of their own calls, but playback of an adult "territorial advertising song" solicited a strong response, with one fledgling leaping down from perch to perch out of the canopy, through the mid storey until it perched in the understorey only a few metres above the recordist. The fledglings were heard calling over the following week from the same general area within the forest. The same food begging call of *M. buckleyi* was also heard by J. Arwin (pers. comm.) at Manu Lodge, Peru in August 1997. The nest of *M. buckleyi* remains to be discovered, but it may nest in tree cavities, as do its relatives *M. semitorquatus* and *M. ruficollis* (Mader 1979, Thorstrom *et. al* 2000a, Thorstrom *et. al* 2000b).

Moult

The only moult data come from a female (AMNH No. 230774), collected from Orosa, Peru in November and an immature male (AMNH No. 181867) from Rio Chinchipe, Peru obtained on 30 July, which were both in tail moult. Post breeding moult in the adult in November would tie into the little of what we know of the species' breeding season, with fledged young still being fed at two different Peruvian sites in August.

Conclusion

Vocalizations of *M. buckleyi* remain not only the best form of identification currently available (due to identification difficulties with our current knowledge of plumage variations) but also the best method of locating this elusive species. However, observers' familiarity with the voices of the commoner *Micrastur* species with which it is sympatric is essential. For many secretive and poorly-known Neotropical forest species vocal recognition is the most important key, for not only finding the species but also identification (Parker 1991, Whittaker 1998). Incorporating into survey work the method of "trawling" with tape playback of *M. buckleyi* "territorial advertising song" in suitable habitat at pre-dawn and dusk will greatly increase the possibility of finding this majestic forest falcon.

Acknowledgments

Financial support for part of my travelling was provided by the John D. and Catherine T. MacArthur Foundation, the National Geographic Society and Wildlife Conservation Society. For travelling opportunities in Peru I would like to thank Victor Emanuel Nature Tours Ltd. I thank Keith Brown for his help and encouragement in the field, often under difficult circumstances, and J. R. Malcom, J. Patton, M.N. da Silva and C. Gascon and Dionisio Pimentel Neto for their companionship. The manuscript was greatly improved by comments from Paul Salaman and Chris Feare to whom I am very thankful. Many thanks to the following for sharing personal unpublished observations and tape recordings: Paul Coopmans, John Arwin, Paul Greenfield, John V. Moore, Robert Ridgely, Martin Kelsey, Paul Salaman, Barry Walker and David C. Wege. A special thanks to Mort and Phyllis Isler who prepared the map and spectograms, to David Agro for allowing me to use his slides and Thomas Schulenberg for his constant help with locating manuscripts. Thanks especially to my wife Nadime Whittaker and my two children Steven and Luana for their constant support and encouragement in my work while I have been away from home for long periods.

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Vocal evidence of species rank for nominate Unicolored Tapaculo *Scytalopus unicolor*

by Paul Coopmans, Niels Krabbe
& Thomas S. Schulenberg

Received 12 May 2000

Salvin (1895) named a new species, *Scytalopus unicolor*, based on three specimens from northern Peru, and this species was recognized by later authors (e.g., Cory & Hellmayr 1924). However, during a revision of the genus *Scytalopus* (which formed the basis for the classification of the genus in Peters 1951 and Meyer de Schauensee 1966), Zimmer (1939) combined *unicolor* with four other taxa (*latrans, subcinereus, intermedius*, and *parvirostris*). Of this group, "*unicolor*" was the oldest name, and Zimmer's polytypic species took the name *Scytalopus unicolor*.

The songs of suboscine birds, such as *Scytalopus*, are believed to be entirely innate (Kroodsma 1982, 1984; see also Isler *et al.* 1998). Recent field studies (Whitney 1994, Krabbe & Schulenberg 1997) have shown that almost all *Scytalopus* taxa that were treated as subspecies by Zimmer (1939) should be elevated to species rank, primarily because of their diagnostically different vocalizations. Furthermore, Arctander & Fjeldså (1994) found a positive correlation between vocal and genetic differences in *Scytalopus*, and showed that allopatry and parapatry are no evidence of close relationship.

As part of a re-evaluation of the species limits of *Scytalopus* based on voice, Krabbe & Schulenberg (1997) showed that *Scytalopus* "*unicolor*" *parvirostris* differed dramatically in voice from *Scytalopus* "*unicolor*" *latrans* and *S.* "*u.*" *subcinereus* (see below), making it clear that *parvirostris* is a separate species. However, vocal data were lacking for *unicolor*, and these authors left *latrans, subcinereus,* and *intermedius* as subspecies of *Scytalopus unicolor*, which was a conservative approach.

In 1998 PC obtained tape recordings of two individuals of nominate *unicolor* near Cajabamba (the type locality for *unicolor*), on the east slope of the Western Andes in southern Depto. Cajamarca, northern Peru. These recent tape recordings (as well as additional recordings of a single bird obtained by Richard Webster and Rose Ann Rowlett, also near Cajabamba, on 20 October 1996) reveal that both song and calls of nominate *unicolor* differ strikingly from those of *latrans*, *subcinereus*, and *parvirostris* (Figs. 1-2).

Distribution

The type series of *S. unicolor* consisted of a pair from Cajabamba (2,750 m), on the east slope of the Western Andes in southern Cajamarca, and of a female from Huamachuco (3,175 m), *c.* 20 km to the south, also on the east slope of the Western Andes, in La Libertad. Zimmer (1939) ascribed specimens from further south on the same slope in La Libertad (Succha, Soquián), at elevations ranging from 2,000 to 3,150 m, to this form, and also included five specimens from Chugur, on the Pacific slope in southern Cajamarca. In addition, Koepcke (1961) identified a male and a female from Sunchubamba, further south on the Pacific slope in Cajamarca, as nominate *unicolor*. As Zimmer (1939) was well aware, its occurrence at Chugur is problematic, as this locality is north of and near Taulis, the type locality of *subcinereus*. *Subcinereus* ranges from 1,500 to 4,000 m in southwestern Ecuador, and also occurs on the Pacific slope in northern Peru south to southern Cajamarca (Nancho). In the vicinity of Huambos, southern Cajamarca, NK has tape-recorded it near the crest of the Western Andes, and apparently it also descends the adjacent east slope of the Western Andes, as two specimens from Cutervo seem to represent this form (see discussion in Krabbe & Schulenberg 1997). The plumage differences between *subcinereus* and *unicolor* are so slight that we hesitate to accept Pacific slope records of *unicolor*, at least until documented by voice.

Intermedius occurs in the Utcubamba drainage in the northern Central Andes, Depto. Amazonas, Peru (type locality La Lejia, 2,743 m). No definite vocal data exist, but tape recordings from within its range (PC) suggest that it might be a distinct species as well. For the moment we leave *intermedius* as a subspecies of *latrans*, which it resembles morphologically more than it does nominate *unicolor*.

Latrans is widely distributed in the Andes of Ecuador, Colombia, and Venezuela, at elevations ranging from 1,500 to 4,000 m. At the type locality on Cerro Munchique in the Western Andes of Colombia, vocalizations are similar to those recorded in inter-Andean and western Ecuador and in the Central Andes of Colombia; birds from the Amazonian slope north of the Río Marañón approach *subcinereus* in the male's black plumage, and in their fairly similar vocalizations. Further studies are needed in order to delimit their range in Colombia and to establish whether Venezuelan birds belong with them.

Identity of the modern tape-recordings from Cajabamba

We were not able to obtain specimens of the tapaculos tape-recorded at Cajabamba. In view of the potential importance of these recordings to the taxonomy of *Scytalopus* (see below), and the difficulties of field identification of *Scytalopus* based on plumage characters, we here justify our identification of these birds as *unicolor*, with which they agreed in their uniform grey colour.

Species diversity of *Scytalopus* on the western cordillera of the Andes of southwestern Ecuador and northwestern Peru is low. Throughout much of this region, from southern Loja south to Cajamarca, only a single taxon (*subcinereus*) is found. Locally in Cajamarca there are records of *affinis*, which is also found farther south in Ancash (where it is the only *Scytalopus* recorded). We show below that the vocalizations of the Cajabamba population differ dramatically from those of *subcinereus*, making it very clear that these do not represent the same taxon. The vocalizations of *affinis* are also quite distinct from those of the Cajabamba population (see Figs. 30 and 31 in Krabbe & Schulenberg (1997)).

B. Whitney, commenting on an earlier draft of this manuscript, suggested that, in the absence of a specimen compared directly to the type of *unicolor*, we could not rule out the possibility that the tape recordings from Cajabamba represented not *unicolor* but instead "an undescribed species of *Scytalopus*". Indeed, in the absence of a specimen, we cannot rule out such a possibility (which, admittedly, even the author of this suggestion regarded as low). In view of the low species diversity of *Scytalopus* from the western cordillera of northern Peru, and in recognition that under any circumstances the probabilities would be extraordinarily small that two independent parties (Coopmans; and Webster and Rowlett) would happen upon a previously unknown species of *Scytalopus* at the type locality of *unicolor*, we believe that our equation of these tape recordings with *unicolor* is the only rational hypothesis. One might propose the existence of a virtually unlimited number of previously undetected taxa of *Scytalopus*, but our contention would be that such suggestions may safely be put aside unless and until such time as the notion is positively supported by tangible evidence, rather than speculation.

Vocalizations

Although our sample size is small (songs and calls of three individuals), the material is consistent. The song of nominate *unicolor* (n = 3) (Fig. 1 D) is a simple phrase of 4-6 notes, the first overtone loudest, *c.* 2,400 Hz, the fundamental and higher overtones barely audible, each note becoming shorter and the pace increasing through the phrase, which lasts 0.3-0.5 s and is repeated at 1 s intervals.

Both *latrans* (n = 55) and *subcinereus* (n = 49) have simple songs of single, endlessly repeated notes (Fig. 1 A-C), with at least three distinct harmonics, the fundamental and the first overtone being variously the loudest; east slope birds referred to *latrans* (n = 25) differ by always having the fundamental loudest and by having barely audible overtones. Songs of east slope birds and *subcinereus* often begin with rhythmic phrases. These are occasionally repeated a number of times, but usually the phrases become increasingly longer and the intervals shorter, soon becomeing a repetition of a single note at constant pace, which varies from four to eight notes per s, fastest when the bird appears most excited. There is little or no geographical

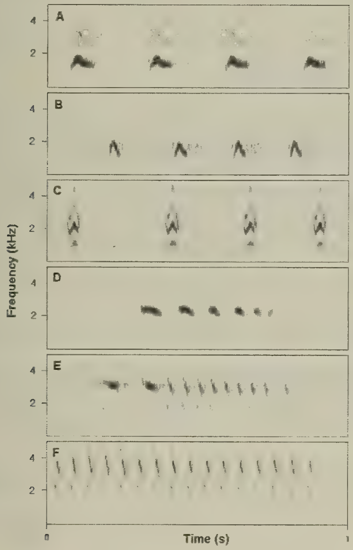

Figure 1. Songs of *Scytalopus* tapaculos. (A) *S. l. latrans*, Cotopaxi, w Ecuador; (B) *S. latrans*, Napo, e Ecuador; (C) *S. latrans subcinereus*, Loja, sw Ecuador; (D) Nominate *S. unicolor*, near Cajabamba (type locality), east slope of West Andes, s Cajamarca, nw Peru; (E) *S. acutirostris*, Huánuco, c Peru; (F) *S. parvirostris*, Pasco, c Peru. A-C and E recorded by NK, D by PC, F by TSS.

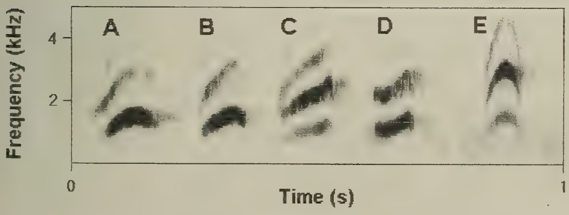

Figure 2. Calls of *Scytalopus* tapaculos. (A) *S. l. latrans*, Cotopaxi, w Ecuador; (B) *S. latrans*, Morona-Santiago/Azuay boundary, se Ecuador; (C) *S. latrans subcinereus*, Azuay, sw Ecuador; (D) *S. latrans subcinereus*, between Llama and Huambos, Pacific slope near crest of the Andes, s Cajamarca, nw Peru; (E) Nominate *S. unicolor*, near the type-locality in s Cajamarca, nw Peru. A-D recorded by NK, E by PC.

variation in the songs and calls of each of these forms.

The song of *unicolor* (Fig. 1 D) is only slightly higher-pitched than that of high-pitched individuals of *latrans* and *subcinereus* (Fig. 1 A-C), and is distinctly lower-pitched than songs of *acutirostris* and *parvirostris* (Fig. 1 E-F). The pace and rhythm remains fairly constant, even at high excitement such as after playback of song.

The contact call of *unicolor* (n = 3) (Fig. 2 E) is a single note, rising and falling symmetrically like an inverted U, higher-pitched (loudest at 2.5-3 kHz) than calls of *latrans* (n = 40) (Fig. 2 A-B) and *subcinereus* (n = 18) (Fig. 2 C-D) (both loudest at 1.5-2.5 kHz), and lacks the slow rise in pitch to near the end of the note, so characteristic of calls of those taxa.

Taxonomy

On the basis of the strong vocal differences between *unicolor* and the other three taxa, we suggest that *latrans*, *subcinereus*, and *intermedius* be ranked as a species, *S. latrans* (Blackish Tapaculo), distinct from a monotypic *S. unicolor* (Unicolored Tapaculo). We acknowledge (as did Krabbe & Schulenberg 1997:58) that birds we refer to as *S. latrans* might comprise two or more (allopatric or parapatric) species. The vocalizations of *S. unicolor* are so distinctive that they do not indicate which taxon might be its closest relative. There is a striking resemblance in pattern to the song of a population found on the east slope of the Andes in central Peru (Fig. 1 E). The nomenclature of the birds from central Peru is problematic; Fjeldså & Krabbe (1990) referred to these birds as an "unnamed species", although we follow the arguments outlined by Krabbe & Schulenberg (1997) for calling them *acutirostris*. Nomenclature aside, the resemblance in song between *unicolor* and *acutirostris* may be purely coincidental. We believe that determination of phylogenetic relationships among taxa of *Scytalopus* will best be resolved through the application of genetic studies.

Acknowledgments

We thank P. Van Gasse and B. M. Whitney for valuable comments on the manuscript.

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A note on the correct type of *Macabra* Bonaparte, 1854 (Strigidae)

by John M. Penhallurick & Steven M. S. Gregory

Received 24 June 2000

Macabra as a generic (or subgeneric) name has been used recently by several authors. Wolters (1975-82: 71) listed *Macabra* as a genus including White-throated Screech-Owl *Otus albogularis*, Bare-shanked Screech-Owl *Otus clarkii* and Rufescent Screech-Owl *Otus ingens*. More recently, König *et al*. (1999: 35) stated: "We treat the American screech owls *Otus* as members of subgenera *Megascops* and *Macabra*, as they differ from Old World scops owls in having two songs." They also listed *Macabra albogularis* as a synonym of *Otus albogularis* (1999: 279)

The history of the name *Macabra* is complex. It was first used by Bonaparte (1854a: 112), where it is a *nomen nudum*. Bonaparte used it again in the same year (1854b: 541), on that occasion listing a number of species: "*hylophila* Temm.; *fasciata* Vieill.; *suinda* Vieill.; *melanota* Vieill.; *cayanensis* Gm.; and *albigularis* Cassin." These names include species from several different modern genera – *Strix* in the case of Rusty-barred Owl *Strix hylophila* Temminck, 1825 (1825: pl. 373); *Asio* in the case of *Strix suinda* Vieillot, 1817 (1817: 34) (= Short-eared Owl subsp. *Asio flammeus suinda*); *Pulsatrix* in the case of "*melanota* Vieill." (= *Noctua melanota* Tschudi, 1844 (1844: 266) = Band-bellied Owl *Pulsatrix melanota*); and *Otus* in the case of

Syrnium albo-gularis Cassin, 1850 (1850:124) (= White-throated Screech-Owl *Otus* [*Megascops*] *albogularis*). The other two names – *Strix fasciata* Vieillot, 1817 (1817: 21) of "Martinique"[?]; and *Strix cayennensis* J. F. Gmelin, 1788 (1788: 296) are indeterminable.*

Clearly, the use of *Macabra* by Wolters (1975-82: 71), and König *et al*. (1999: 279) reflects the inclusion of *Otus albogularis* (Cassin, 1850) among the names listed by Bonaparte. The obvious diversity of that list, however, necessitates the subsequent designation of a type species. Ridgway (1914: 759), under the synonymy of *Ciccaba* Wagler, 1832, listed *Macabra* Bonaparte, 1854 and stated: "Type, as fixed by Gray, *Strix hylophila* Temminck."

G. R. Gray (1855: 135) listed "*Macabra* Pr. B. 1853 (*Strix cayanensis* Gm.)", but as we indicated above, *Strix cayennensis* J. F. Gmelin, 1788 is indeterminable. Thus this designation is invalid. Subsequently, G. R. Gray (1869: 49) listed "*Macabra*, Bp. 1853?" as a subgenus of "*Syrnium*, Sav.[igny] 1809" but did not list a type. This brings us to R. B. Sharpe (1875: 244) who listed *Macabra* under the synonymy of *Syrnium* Savigny, 1809, with "*S. hylophilum*" as the type.

Thus it appears that the correct citation for *Macabra* Bonaparte should be:

> *Macabra* Bonaparte, 1854, *Revue et Magasin de Zoologie pure et appliquée*, sér. 2, 6, p. 541. Type, by subsequent designation (R. B. Sharpe, 1875, *Catalogue of the Birds in the British Museum*, 2, Striges, p. 244), *Strix hylophila* Temminck, 1825.

This invalidates the use of *Macabra* by Wolters (1975-82: 71) and König *et al*. (1999: 35, 279) to refer to New World *Otus* species, notably *Otus albogularis*, *Otus clarkii* and *Otus ingens*, in each case better assigned to *Megascops*. Instead, *Macabra* Bonaparte, 1854 becomes a subjective junior synonym of *Strix* Linnaeus, 1758; or, if one accepts Wolters' (1975-82: 71) treatment of subgenera under *Strix* Linnaeus, 1758, *Macabra* would become the monotypic subgenus for *Strix hylophila* Temminck, 1825, replacing Wolters' *Tacitathena* Kelso & Kelso, 1937 (1937), an objective junior synonym of *Macabra*.

Acknowledgements

We wish to thank Michael Walters, Bird Group, The Natural History Museum, Tring, and James Dean, Division of Birds, National Museum of Natural History, Washington, for their generous help.

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*Ridgway (1914: 765) listed *Strix fasciata* Vieillot, 1817 in the synonymy of *Ciccaba virgata virgata*, but preceded it with "(??)". Peters (1940: 162, footnote 1) said of Vieillot's name: "a species never identified". Of *Strix cayennensis* [nec *cayanensis*] J. F. Gmelin, 1788, Sharpe (1875: 272, footnote) stated: "The name of cayennensis is founded on a plate of Buffon's, [= "*Chat-huant de Cayenne*" in Planches enluminées, in Histoire naturelle des oiseaux, pl. 442] which I find it impossible to recognize." Michael Walters has pointed out to us that Gmelin's name is pre-dated by *Strix cayennensis* P. L. S. Müller, 1776, *Des Ritters Carl von Linné vollständiges Natursystem nach der zwölften Latinischen Aufgabe.*, suppl., p. 70, based on the same plate, and thus also, of course, indeterminable.

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The status of the genus *Lugensa* Mathews and the birds collected by Carmichael on Tristan da Cunha in 1816-1817

by W.R.P. Bourne

Received 17 July 2000

Olson (2000) has recently suggested that since the name *Procellaria lugens* Kuhl 1820 appears to relate to a misidentified drawing of the Mottled Petrel *Pterodroma inexpecta* (Bourne & Elliott 1965), the generic name *Lugensa* bestowed on the Kerguelen Petrel, then known as *Pterodroma lugens*, by Mathews (1942), must also be invalid. He omitted to mention that when I pointed out some references to him I disagreed with this conclusion, since despite the dubious status of the name *Procellaria lugens* Kuhl (1820, translated by Grant & Mackworth Praed 1954), Mathews (1942, quoted by Olson) also specifically stated that he wished to bestow the generic name *Lugensa* on the species "formerly known as *Pterodroma brevirostris*", so clearly this should stand.

In fact, while Kuhl may have included "*Procellaria lugens* Banks" in the synonymy of his equally mistaken "*Proc. grisea* L.", it seems likely that he was actually referring to one or both of two early specimens of the Kerguelen Petrel that had not yet been safely lodged in national museums. The type of *Procellaria brevirostris* Lesson at the Museum National d'Histoire Naturelle in Paris was supplied by Delalande in 1819 or 1820. Since it has bleached feet it seems most likely to have provided the basis for Kuhl's description which included abnormal pale feet. The other was collected by Carmichael (1819) on Tristan da Cunha in 1816-17, and was apparentiy bought by W.E. Leach under the name *Procellaria cinerea* at the Bullock sale in 1819 (Sharpe 1906). It is still in The Natural History Museum, Tring.

It should also be noted that while Stresemann (1953) thought that only the type of the Tristan Bunting *Nesospiza acunhae* in Berlin survives from the Carmichael collection, in addition to this Kerguelen Petrel there is also the type of *Fregetta (tropica) melanoleuca* Salvadori (1908, Bourne 2000) in Turin, so it might be worth looking for other missing specimens.

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MEMBERSHIP

See also website: **http://www.boc-online.org**

Following the approval of the changes to the Rules of the Club at the Special General Meeting on 31st October 2000, Membership of the Club was extended to non-Members of the British Ornithologists' Union.

Subscription rates, as from 1 January 2001 are now:

BOU Members	£12.00	US$ 23.00
Non-BOU Members	£18.00	US$ 33.00

All paid-up Members of the Club receive (postage free) four quarterly issues of the *Bulletin*, and the annual index. Applications for Membership, enclosing the annual subscription, should be made to the **Hon. Secretary** (address as below).

The Membership List 2001 is available, free of charge to all requesting a copy, on application to the Hon. Secretary (address below). This list shows addresses (including E-mail addresses, where known), for all paid-up Members as at 31 December 2000. Members are requested to inform the Hon. Secretary of all corrections or changes, without delay, for despatch of the *Bulletin*. To offset the cost of postage, any contribution, or a stamped and addressed (A5-sized) envelope will be gratefully accepted.

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J.A. Jobling, 14 The Valley Green, Welwyn Garden City, Herts. AL8 7DQ, UK.

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CORRESPONDENCE

Correspondence on membership, changes of address and all other matters should be addressed to:
Hon. Secretary, Cdr M.B. Casement, OBE, RN, Dene Cottage, West Harting, Petersfield, Hants. GU31 5PA, UK. (or E-mail: mbcasement@aol.com). For details of Club Meetings see inside front cover.

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Registered Charity No. 279583

Bulletin of the British Ornithologists' Club
ISSN 0007-1595
Edited by Professor Chris Feare
Volume 121, Number 3, pages 145 - 216

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Authors are invited to submit papers on topics relating to the broad themes of taxonomy and distribution of birds. Descriptions of new species of birds are especially welcome and will be given priority to ensure rapid publication, subject to successful passage through the normal peer review procedure; they may be accompanied by colour photographs or paintings. On submission, **two copies** of manuscripts, typed on one side of the paper, **double spaced** and with **wide margins**, should be sent to the Editor, Prof. Chris Feare, 2 North View Cottages, Grayswood Common, Haslemere, Surrey GU27 2DN, UK. **Note that electronic versions are not required on first submission.** Where appropriate half-tone photographs may be included and, where essential to illustrate important points, the Editor will consider the inclusion of colour plates (if possible, authors should obtain funding to support the inclusion of such colour plates).

When papers are accepted, revisions should be returned to the Editor as both a **hard copy**, as outlined above, and also on a 3.5" disk, as **Word or Wordperfect files** for PC. At this stage authors should send their email addresses, as completion of the editing process and proof reading will be undertaken electronically.

For instructions on style, see the inside rear cover of *Bulletin* 121 (1) or the BOC website:
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The *Bulletin* is despatched from the printer on publication and is sent by Surface Saver Postal Services to all European destinations outside the UK and by Air Saver Postal Services to destinations outside Europe. Those whose subscriptions have not been received by the beginning of a month of publication will have their copies despatched by surface mail, after their current subscription has been paid.

Printed on acid-free paper.

Published by the BRITISH ORNITHOLOGISTS' CLUB
Typeset by Alcedo Publishing of Colorado Springs, USA,
and printed by Crowes of Norwich, UK

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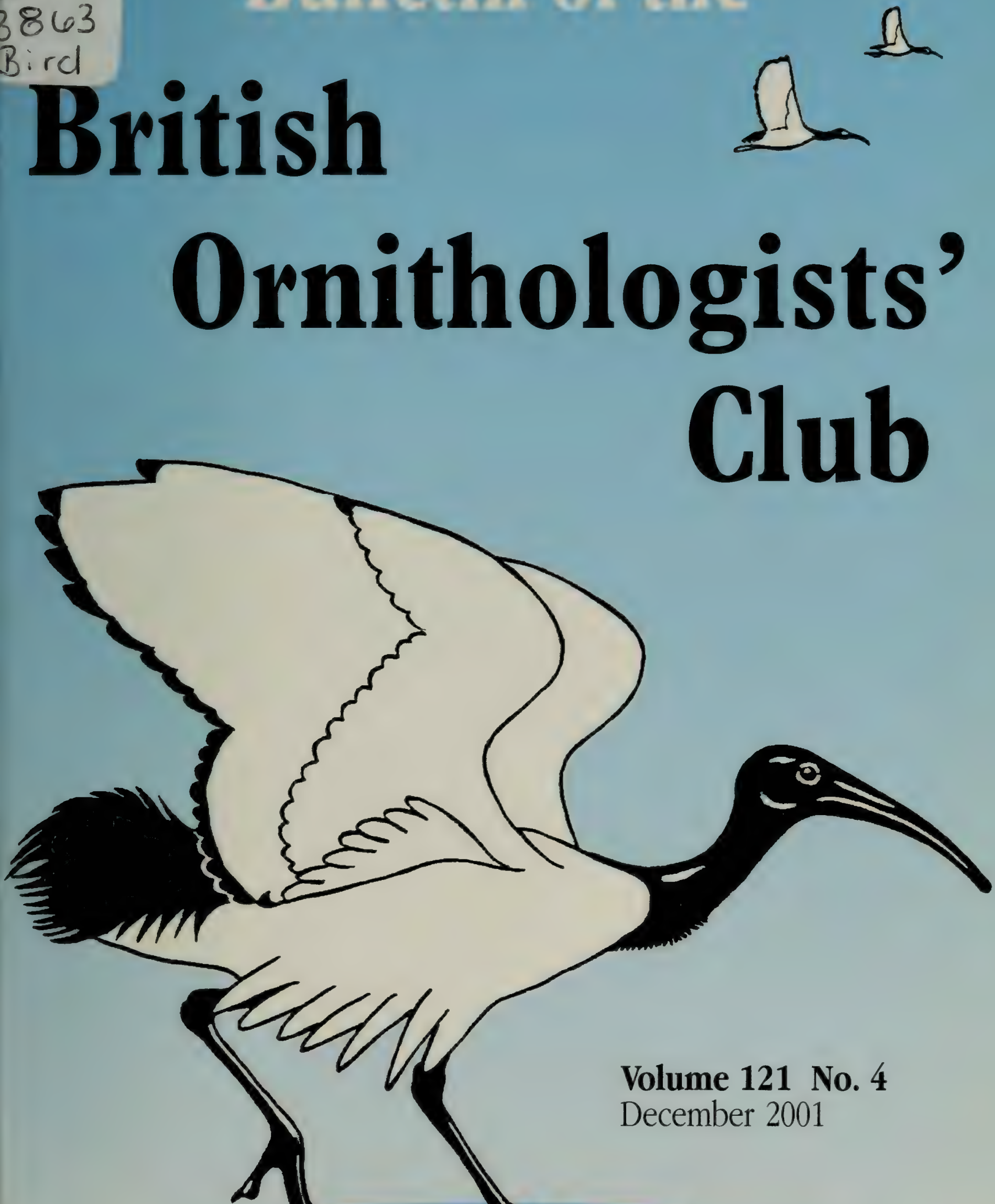
Bulletin of the British Ornithologists' Club



Volume 121 No. 4
December 2001

MEETINGS are held in the **Sherfield Building** of **Imperial College**, South Kensington, London, SW7. The nearest Tube station is at South Kensington; a map of the area will be sent to members, on request. (Limited car parking facilities can be reserved, on prior application to the Hon. Secretary). The cash bar is open from **6.15 pm**, and a buffet supper, of two courses followed by coffee, is served at **7.00 pm.** (A vegetarian menu can be arranged if ordered at the time of booking). Dinner charges were increased to **£18.00**, as from **1st January 2002.** Informal talks are given on completion, commencing at about 8.00 pm.

MEETINGS PROGRAMME FOR 2002

15 January – Dr Clemency Fisher: "*The Earl & the Pussycat: the 13th Earl of Derby, his life and legacy*".
Clem has been a curator at the Liverpool Museum since 1975. The museum was founded on the internationally important bird and mammal collections of the 13th Earl of Derby, of Knowsley Hall, and his legacy has been built on over the years. The bird collections at Liverpool are now ranked amongst the top 20 in the world. An exhibition in 2002 will reunite paintings in the Library at Knowsley with the specimens from which they were drawn, by the very best bird artists of the late 18th and early 19th centuries. These artists included John Gould, Joseph Wolf and, in particular, the Nonsense Poet Edward Lear.

*Applications to the Hon. Secretary by **3 January** please.*

26 February – Ruth Tingay: "*Three-in-a-nest sex romp shocker: implications for the critically endangered Madagascar Fish Eagle.*"
Ruth began her career working at London Heathrow Airport, monitoring the legal and illegal trade in wildlife. She resigned in 1994 to pursue a more pro-active role in conservation, with a particular interest in raptors. She has conducted field research in the UK, Mauritius, Israel, Mexico, USA and Madagascar. She earned an MSc from Nottingham University in 2000, studying the unique breeding behaviour of the Madagascar Fish Eagle. She is currently undertaking her doctorate at Nottingham University, in association with The Peregrine Fund, continuing her research on the behavioural ecology and population dynamics of the critically endangered Madagascar Fish Eagle.

*.Applications to the Hon. Secretary by **12 February** please.*

26 March – Nigel Redman: *"Two decades of birding in the Soviet Union".*
Nigel has been leading tours for Birdquest for 20 years, visiting every continent in the process. During this time he has made 14 trips to the former USSR, witnessing many political changes in the course of regular tours to Siberia, Central Asia, and the Caucasus. In recent years he has become a publisher of bird books, initially with Pica Press, and currently the Christopher Helm imprint of A&C Black for which he is Commissioning Editor. He still manages to lead two bird tours per year and in 2001 returned to Sakhalin and Ussuriland in far eastern Siberia.

*Applications to the Hon. Secretary by **12 March** please.*

Future meetings - Tuesdays:
30 April – AGM and social evening
25 June – Clifford Frith on Birds of Paradise – precise title to be agreed.
24 September, 5 November, and 3 December – speakers not yet finalised.

Overseas Members visiting Britain are especially welcome at these meetings, and the Hon. Secretary would be very pleased to hear from anyone who can offer to talk to the Club, giving as much advance notice as possible - please contact: Michael Casement, Dene Cottage, West Harting, Petersfield, Hants. GU31 5PA. UK. Tel/FAX:01730-825280 (or Email: mbcasement@aol.com).

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Bulletin of the BRITISH ORNITHOLOGISTS' CLUB

Vol. 121 No. 4 Published 3 December 2001

CLUB NEWS

Membership News

It is with great regret that we report the recent deaths of the following Members:
Eric Gorton (1953-2001), N.S. Malcolm, (1989-2001), P.B. Clarke (1992-2001), Dr P.A. Clancey (1938-2001, see obituary below) (*Hon. Life Member*), and M.L.R. Romer (1962-2001), (*Committee 1964-68*).

Subscription Rates for 2002.

These are unchanged for next year @ **£18.00 p.a.** but **£12.00 only** for paid-up Members of the BOU - see details inside rear cover. Please complete NOW the enclosed subscription renewal form, to avoid the need for subsequent reminders, thus saving administration costs. **Members with Bankers Standing Orders in force, or who have paid in advance for 2002, need take no further action**.

The BOC Website - http://www.boc-online.org This continues to expand and grow in usefulness. Do please look at it, and let us have your suggestions for improvement.

Rolex awards for Enterprise The Hon Editor has been sent information about these awards, which can provide substantial funding for successful projects. For further details, visit www.rolexawards.com or email Janice Williams at janice.williams@mslpr.co.uk

Obituary – Dr Phillip Alexander Clancey

Dr Phillip Alexander Clancey was born on 26 September 1917 in Glasgow, Scotland. His family subsequently moved to London and then to Switzerland where he started school. By the age of seven he was back in Scotland where he attended several schools in the South Side of Glasgow before studying at the Glasgow School of Art as a young man. He served with the Allied forces in Sicily and Italy during World War II, escaping death by the narrowest of margins on several occasions and he was deafened in one ear for over two months by an artillery explosion. He was de-mobbed in 1946 and was employed by an engineering consortium in the north of England for a few years. Ornithology, however, remained his abiding passion and in 1948-1949 he accompanied Col. Richard Meinertzhagen on an ornithological expedition to eastern and southern Africa and the Middle East that included Yemen, Aden, Somali, Kenya and South Africa.

He immigrated to South Africa in August 1950 to take up the post of Curator of the Natal Museum in Pietermaritzburg. He was appointed Director of the Durban Museum and Art Gallery on 1 January 1952 and held this post until his retirement over 30 years later on 25 September 1982. He remained a Research Associate of the Durban Natural Science Museum until the date of his passing. Dr Clancey is survived by two nieces who reside in Scotland.

Dr Clancey was a prodigious scientific author on the subject of African birds, especially their taxonomy, with a particular interest in the identification of subspecies. Examples of his many catalogues and books include his *Catalogue of the Birds of the South African subregion* (1965-1972), *Handlist of the Birds of Southern Mozambique* (1970-1972), for which he was awarded the prestigious Gill Memorial Medal of the Southern African Ornithological Society (now BirdLife South Africa), *The Birds of Natal and Zululand* (1964), *The Gamebirds of Southern Africa*

(1967), *The Rare Birds of Southern Africa* (1985) and *Kingfishers of Sub-Saharan Africa* (1992). He was the chief editor of the *S.A.O.S. Checklist of Southern African Birds* (1980). Dr Clancey was a co-author of the second volume of the landmark *Atlas of Speciation of African Birds*, published by the British Museum (Natural History) during 1978. He also contributed as an author to *The Atlas of Southern African Birds* (1997). His list of other publications is even more impressive, running to a monumental total of over 530 scientific papers and associated articles. Indeed his legacy of taxonomic papers is unsurpassed and Dr Clancey named some 200 subspecies of southern African birds. Several avian subspecies have been named by others in his honour.

He served as President of the Southern African Ornithological Society, was the long-standing Chairman of its List Committee, and was awarded Honorary Life Membership by this organisation. The American Ornithologists' Union honoured him by appointing him as a Corresponding Fellow. He was also a long-standing Chairman of the Natal Bird Club (now BirdLife Port Natal) during the Club's formative years and subsequently served as its President. In addition, he served as President of the Southern African Museums Association and was awarded a Fellowship by the Museums Association in London. The University of Natal conferred on him the degree of Doctor of Science *honoris causa* in 1981. He joined the British Ornithologists' Club in 1958 and on the 50th anniversary of his joining he was elected an Honorary Life Member.

Dr Clancey was almost single-handedly responsible for amassing the collection of some 40,000 bird study skins housed in the Durban Natural Science Museum. Dr Clancey's skill in the preparation of bird skins was renowned and the Museum's collection, the third largest in Africa, is widely acknowledged as the finest on the continent. Dr Clancey organised some 26 major expeditions in Africa during the course of compiling this collection. His trips to Mozambique were the most noteworthy and resulted in the largest collection of material in existence from this poorly known region. His discovery of the Lemon-breasted Canary *Serinus citrinipectus*, a species new to science, and of the southern Mozambique population of the Olive-headed Weaver *Ploceus olivaceiceps* were particular highlights of these Mozambique investigations. Dr Clancey's success in placing the Museum at the forefront of African ornithology is reflected in the large number of eminent ornithologists that have served there during and after his tenure, including Walter Lawson, Richard Brooke, Clive Quickelberge, Ian Sinclair, Dr John Mendelsohn and Dr Aldo Berruti.

His artist talents are evident in the many bird paintings presented in his books and in the dioramas on display in the Durban Natural Science Museum. Some of the dioramas were repainted up to six times until they matched his exacting standards. Several million visitors to the Museum have enjoyed these displays since their unveiling. His avian portraits remain in high demand by collectors of fine African art; for example his work has graced the boardrooms of companies such as Barlow Rand.

Dr Clancey was a rare combination of outstanding scientist, author, artist and administrator. His immense contribution speaks for itself and the meticulous dedication characteristic of his life's work serves as an example for others working in the various fields which this man so ably mastered.

David Allen

MEETINGS

The 902nd meeting of the Club was held on Tuesday 7th July 2001, at 6.15 pm, in the Rector's Residence, 170 Queensgate, Imperial College. It was attended by 24 Members and 8 guests. Members present were: Dr C.F. MANN (*Chairman*), Mrs P.E. BRADLEY, D.R. CALDER, Cdr M.B. CASEMENT RN, Dr R.J. CHANDLER, Professor R.A. CHEKE, Dr N.J. COLLAR, D. GRIFFIN, J.B. FISHER, C.A.R. HELM, J.A. JOBLING, R.H. KETTLE, D.J. MONTIER, Mrs A.M. MOORE, R.G. MORGAN, A.J. PITTMAN (*Speaker*), Dr R.P. PRŶS-JONES, P.G.W. SALAMAN, R.E. SCOTT, Dr D.W. SNOW, S.A.H. STATHAM, N.H.F. STONE, C.W.R. STOREY and M.W. WOODCOCK.

Guests attending were: M.J. BRADLEY, Mrs J.B. CALDER, Mrs C.R. CASEMENT, A. JUNIPER, Mrs M. MONTIER, P.J. MOORE, .Mrs S. STONE and Mrs J.B. WOODCOCK.

After dinner, Tony Pitmann gave a fascinating illustrated presentation entitled *The Blue Macaws*, which covered the *Anodorhynchus* group and Spix's Macaw *Cyanopsitta spixii*.

Macaws are divided into four genera - *Anodorhynchus* with three species, the Hyacinthine or Great Blue *A. hyacinthinus*, Lear's *A. leari* and Glaucous *A. glaucus* Macaws; *Ara* has twelve species including the Scarlet *A.macao*, Blue and Yellow *A. ararauna* and Green-winged *A. chloroptera* Macaws, as well as small macaws such as Illiger's Macaw *A. maracana*; *Diopsittica*, a recent re-classification, with one species; and *Cyanopsitta*, also monotypic, with Spix's Macaw.

Anodorhynchus hyacinthinus, first described by Latham in 1790, is 1 m long and weighs *c.*1.5 kg, making it the largest member of the parrot family. It inhabits savannah with palm groves and vegetation islands from northern Brazil through to the south-west and the border lands with Paraguay and Bolivia. Most of the 3,000–5,000 birds live in the Pantanal region of south-west Brazil. It is listed as endangered, the main constraint being a shortage of suitable nesting sites caused by ranchers' logging, natural wastage and competition from other birds and animals. To rectify this, the Projeto Arara Azul, which has been in operation in the Pantanal for ten years, is achieving considerable success with nest boxes. Of 418 nest sites currently being monitored, 264 are natural and 154 artificial. In response to the conservation work the Hyacinthine Macaw population is increasing.

Lear's Macaw, *c.* 75 cm, occurs in a small remote region in the north-eastern Brazilian state of Bahia. It was first described by Prince Bonaparte in 1856 and named after Edward Lear, who illustrated it in the belief it was a Hyacinthine Macaw. Although traded throughout the 19th and early 20th centuries, its geographical distribution was only discovered at the end of 1978 by Helmut Sick. It is critically endangered with just 250 remaining in the wild. Most of the 30 in captivity have been confiscated from illegal traffickers.

The smallest of the *Anodorhynchus*, the Glaucous Macaw was first described by Vieillot in 1816 and is considered extinct. The last reliable sighting of the species was in the early 1930s. It was rare even in historical times, although specimens found their way to Europe in the 19th and early 20th centuries. It occurred in Corrientes province in Argentina and neighbouring territories in Paraguay and Uruguay bordering the Paraná, Paraguay and Uruguay rivers.

A fourth blue macaw, *A. purpurascens*, from the Caribbean islands was described by Rothschild (1907) in *Extinct Birds*, but the speaker believes this was a Hyacinthine Macaw, which had been traded up from South America.

Spix's Macaw was first described by Wagler in 1832 and named after Spix, who led an expedition to Brazil from 1817-20 and first saw this species in northern Bahia. The sole remaining bird in the wild, a male paired with a female Illiger's Macaw, was last seen on October 2000 and is now believed dead. The rarity of Spix's Macaw led it to be sought after by wealthy collectors, resulting in its disappearance from the wild. Around 60 captive Spix's Macaws survive in Tenerife, the Philippines, Switzerland, Qatar and Brazil.

The Brazilian government wildlife agency took the unusual step ten years ago of agreeing to allow holders of the species to retain their livestock as long as they co-operated in a programme to re-establish the species in the wild. The Committee for the Recovery of the Spix's Macaw was set up and field work, carried out in its former range northern Bahia, was largely financed by the Loro Parque Foundation. This Committee was dissolved in February 2001 after a disagreement about one of the holders, based in the Philippines, disposing of four captive-bred macaws to a collector in Qatar. The parties concerned are still trying to resolve this important issue so that a serious attempt can be made to re-introduce the species to the wild.

Note. More information about the blue macaws can be gleaned from the Blue Macaws website at *www.bluemacaws.org*

The 903rd meeting of the Club was held on Tuesday 25th September 2001, at 6.15 pm, in the Sherfield Building Annexe, Imperial College. It was attended by 18 Members and 5 guests. Members present were: Dr C.F. MANN (*Chairman*), Miss H. BAKER, Sir David BANNERMAN Bt, P.J. BELMAN, Cdr M.B. CASEMENT RN, Dr. R.J. CHANDLER, Professor R.A. CHEKE, A. GIBBS, Revd. T.W. GLADWIN, D. GRIFFIN, R.H. KETTLE, D.J. MONTIER, R.G. MORGAN, Mrs M.N. MULLER, A.J. PITTMAN, R.C. PRICE, N.J. REDMAN and R.E. SCOTT.

Guests attending were: Det. Inspector P. CANNINGS (*Speaker*), Lady BANNERMAN, Mrs C.R. CASEMENT, Mrs J.M. GLADWIN, and Mrs M. MONTIER.

Phil Cannings then gave an illustrated talk by on *The work of a Police Wildlife Liaison Officer*. The following is a brief synopsis:

Since the late 1980's, a network of Police Wildlife Liaison Officers has developed in the 43 police forces throughout Britain and Northern Ireland. In at least eight forces there are now full time wildlife officers, but for the majority the role is a part time one for officers who have other policing commitments. Most of these have a good personal knowledge and interest in wildlife - Phil is himself a qualified BTO ringer, and Member of the BOU - and the legislation protecting it. They act as a point of contact and expertise for colleagues and members of the public.

The type of case they are called to advise upon is extremely varied, and to a certain degree seasonal. In early summer many complaints are received of land management affecting nesting birds, and building developments are a continual source of complaint, often from objectors playing the 'wildlife card', to prevent development and building work. The Police Wildlife Liaison Officer often has to take the role of referee when conflicting interests are raised.

The Wildlife and Countryside Act 1981 provides protection for all birds, certain animals such as the Great Crested Newt and Dormouse, and a small number of endangered plants. Since the passing of the Countryside and Rights of Way Act, the protection afforded has been strengthened with the introduction of powers of arrest and prison sentences for many offences.

Wildlife offences range from the fairly straightforward - youths shooting at birds with airguns - to organised gangs who use very sophisticated methods to steal birds or their eggs which are then sold on for profit. Since January 2001, when powers of arrest became available for some wildlife related offences, sixteen people have been arrested, and of these one has subsequently been sentenced to four months imprisonment for stealing the eggs of Goshawks and Peregrine Falcons.

Many other species receive protection under British law, and there are Acts of Parliament dealing with badgers, deer and seals, as well as legislation that sets out lawful trapping methods for vermin and pest species. The role of the Police Wildlife Officer is to be aware of the scope of the available legislation and to maintain the specialist contacts with organisations that can provide expert assistance and evidence when necessary. Many officers are themselves active in the natural history or conservation field.

In addition to the so called 'domestic' protection legislation, since the advent of the single European market Police Wildlife Liaison Officers have also become responsible within the European Union for trade in endangered species under the Convention for International Trade in Endangered Species. This had led to seizures of items including rhino horn, elephant ivory and £700,000 worth of Shahtoosh shawls made from the rare Chiru *Panthelops hodgsonii*, a Tibetan antelope. A long-running operation against the Traditional Chinese Medicine trade called Operation Charm has led to the seizure of large quantities of traditional preparations containing such ingredients as bear bile and tiger bone - substances that are banned in trade.

Police are increasingly harnessing the latest forensic techniques such as DNA testing and analysis of soils and other residues, and one police-led initiative is currently working on building a collection of feather samples from known vulnerable raptor nests, and this has already led to a conviction of a man who was found in possession of a bird taken from the wild.

Police Wildlife Liaison Officers are now firmly established in Britain's police service and the network is set to continue developing.

BOOK RECEIVED

D.T. Holyoak. 2001. *Nightjars and their allies*. 7th vol. in *Bird Families of the World* series. Pp 773, 23 colour plates and numerous in-text monochrome paintings by Martin Woodcock, distribution maps, figures and tables. Oxford University Press, Oxford, U.K. ISBN 0 19 854987 3. No jacket price; Natural History Book Service price, Sept. 2001, £50.00.

Subtitled *The Caprimulgiformes*, this is a compendium of contemporary knowledge about the Oilbird (Steatornithidae), frogmouths (Podargidae), potoos (Nyctibiidae), owlet-nightjars (Aegothelidae) and nighthawks, nightjars and allies (Caprimulgidae). It is a handsome, weighty tome, written with scholarship and clarity, well illustrated, the text layout open and uncluttered. The book's plan is spelt out in no less than six pages, followed by 90 pages of essays on biological topics ranging from evolution to moult. These chapters are very readable and very interesting; the text is complemented with explanatory maps, charts, sonograms and line drawings, and figures in a variety of styles. Individual accounts of the 118 species follow, uniformly treated with tabulated mensural data, reasonably large-scale maps showing subspecific boundaries, and monochrome paintings of Caprimulgidae to show wing and tail markings. It is extremely well researched, but lacks the *personal* authority that results from a lifetime's field experience. With references cited throughout, listed at the end of each account (one nightjar with 270) and given fully in the 64-page bibliography, the reference system verges on the unwieldy. The index is also unwieldy, to the point of defeating its purpose.

Introductory essays are more informative than those in Cleere & Nurney's compact but excellent *Nightjars, a guide to nightjars and related birds* (1998, Pica Press) and species accounts are more comprehensive than those by Holyoak (Aegothelidae, Podargidae) and Cleere (Caprimulgidae) in the masterly *Handbook of the birds of the world* (Vol. 5, 1999, Lynx). Caprimulgids are notoriously difficult to paint, and portraits in these three works are often unrecognizable as of the same species, for example *Caprimulgus cayennensis*; in each book owlet-nightjars are made small-headed and often wrong-eyed; for reality, compare Plate 1 in this journal, 1998. What a great pity that here the paintings are not complemented by photographs, as they are in *HBW*.

C.H. Fry

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Passage records of Amur Falcon *Falco amurensis* from SE Asia to southern Africa including first records from Ethiopia

by Peter Clement & David Holman

Received 18 June 1999,
revision received 21 July 2001

The Amur Falcon *Falco amurensis* is a long distance migrant from its breeding area north of the Himalayas to the wintering grounds in southern Africa (principally southern Zambia and southern Malawi south to the Transvaal, northern Cape Province and Natal and northeast Botswana) (Fig.1). Whilst the breeding and wintering areas are well-known, the passage movements are poorly documented or understood and, as Brown *et al.* (1982) commented, the routes are 'still a mystery' and 'certainly the most remarkable of any raptor known.' Although the supporting data are speculative Moreau (1972), Ali & Ripley (1968) and Brown *et al.* (1982) considered that most of the population crosses the western Indian Ocean in a single movement from western India to somewhere along the coast of East Africa. This paper examines the data in support of the transoceanic crossing, together with the records of birds seen moving overland, and presents recent new records from Ethiopia.

Autumn departure from the breeding areas

The breeding range of the Amur Falcon is from southern Siberia, east from the Yablonovy range along the Argun and Onon Rivers and north along the Amur to the confluence with the Gorin River, through northern and eastern Mongolia and south through Manchuria to northern Korea and Inner Mongolia, then south through eastern China to Honan and northern Anhwei (Fig. 1). La Touche (1925-34) and Cheng (1987) reported it as fairly common in the breeding range but rare elsewhere; this is supported by the sparsity of records of migrants anywhere in central China and its occurrence only as a vagrant (less than ten records per year in the southeastern provinces) in southern China and no accepted records at all in Hong Kong (Lewthwaite pers. comm.). In Siberia and northeastern China departure time from the breeding areas is during September 'when it collects in large numbers before going south' (Swinhoe 1871). Passage birds in NE China, at Beidaihe, on the Gulf of Bohai (and within the breeding area), between 1942 - 1944 and 1986 - 1990 were considered very common in summer and passage continued to the end of October; most birds migrated in small flocks of between 10 and 30 individuals and only occasionally did flocks exceed 100, but once over 200 (Williams *et al.* 1992). Further south, in Shandong province Lefevre (1962) documented a flock of 500 near Weihsen on 1 October 1925.

Southeast Asian records

Smythies (1986) recorded the bird as a migrant through Myanmar (Burma) in flocks of up to 100 individuals, often soaring at an immense height 'and looking like insects in the sky', so it is reasonable to assume that it is most probably similarly numerous, though largely unnoticed and unrecorded, in Yunnan and elsewhere in central China at certain times of the year. Passage dates given by Smythies were November and April with occasional records in January and February. In Thailand it has been regarded as a rare vagrant with records in April and November, mostly of single birds or small flocks but in Chiang Mai province there were flocks of 30+ and 40+ in early November

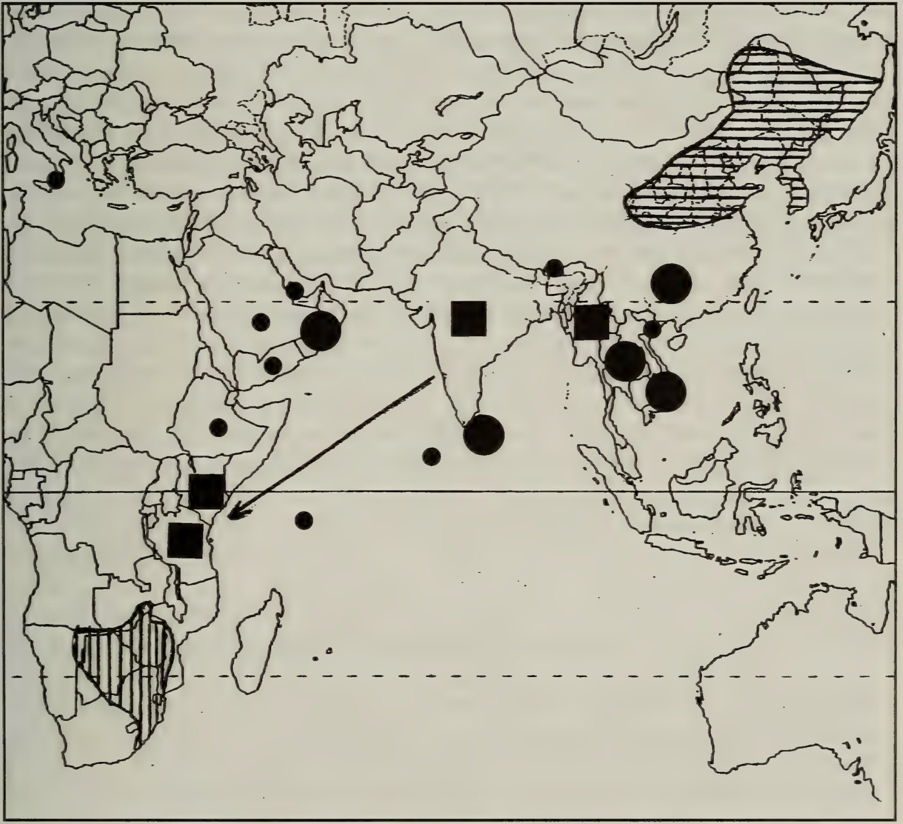

Figure 1. Breeding (horizontal hatching) and wintering (vertical) distribution of Amur Falcon *Falco amurensis*, together with areas of occurrence on passage and probable route of most direct crossing of the western Indian Ocean. ● less than 10 records; ● less than 100 individuals annually; ■ regular occurrences of over 100 individuals.

2000 and 40-50 Amur Falcons over Doi Ang Khang on 21 April 2001 (P. Round and P Benstead pers. comm.) and it may be that it has simply been overlooked as a migrant through the north of the country. In Laos there is a single record of one at Houei Nhang forest reserve, Vientiane, October 1992, and in Vietnam, apart from a single bird in November 1999 near Cuc Phuong NP (W. Duckworth pers. comm), the only other records concern a large movement of at least 250 birds on several days near XaPa in November 1997 (F. Lambert pers. comm.); the frequency or exceptionality of such records in such a vast under-watched area can only be guessed.

Indian subcontinent records

Throughout the Indian subcontinent it is considered a widespread but uncommon or rare autumn passage migrant with a few winter and spring records (Grimmett *et al.* 1998). Ali & Ripley (1983) quote Baker (1894-1901) who considered it a casual breeding bird in N. Cachar, Assam and one pair may have bred in Bhutan in 1999 and 2000 (B. Fletcher pers. comm.). In Arunachal Pradesh, NE India, Amur Falcon was not recorded until 1992 when 'large numbers' were observed in the last week of October (Singh 1994); in Corbett NP, northern Uttar Pradesh, it is an occasional passage migrant in the winter months; there is however, an undated record of between 150 - 200 at Dhikala (T. Inskipp pers. comm.). In Bengal the only known records refer to three individuals at 2,800 m along the Sandakphu trek in November 1983 (J. Hornbuckle pers. comm.). Prior to the breeding records above it had only been recorded in Bhutan in 1988 and 1991, with a flock of 14 in late October 1991 (Inskipp & Inskipp 1993). In Bangladesh it is regular in small numbers between October (earliest 22) and December through the central and northern areas and coastal areas around Chittagong. In Nepal it is generally regarded as an uncommon passage migrant in October and November, though in several autumns in the mid-1980s a sizeable flock roosted regularly near Pokhara; there are also records of small numbers in May and individuals in January, June and July (Inskipp & Inskipp 1991). Highest numbers recorded in autumn have been up to 220 at the Pokhara roost in October 1986 and a flock of 328 south of Kathmandhu in November 1985 (Martins 1986).

Most records in India away from the NE are widely dispersed along the coast of the peninsula from the Rann of Kutch east to the Eastern Ghats; details of these records are somewhat patchy but Moreau (1972) reported it as a straggler at Bombay (19°N) and Ali & Ripley (1968) quote the following information from Butler (1881) 'a huge flock numbering some thousands passing Belgaum' (15°54'N, 74°36'E) and E. H. Aitken saw 'large numbers' in the same area in November (year not given). More recently there are records of small numbers, usually of less than 10 together, from Goa in November 1998 (van der Wielen pers. comm.) and in November 1999 (P. Milford, Y. Princen pers. comm.). In Gujarat one was present at the Gur Wildlife sanctuary in February 1984, and more intriguingly eight together near Madhaspur in January 1989; could these birds still have been on passage to Africa?

It has also been recorded in Sri Lanka in December 1872, March 1932 (Phillips 1978) and December 1998 (Robson 2000). Davidson (1898), referring to North Kanara, Karnataka, noted that it 'appears in some years in immense scattered flocks in November and December. All birds seen have been along the coast and the years 1891 and 1895 were years of great abundance.' On this basis Ali & Ripley (1968) concluded that these records - which do not appear to have been repeated in more recent times - 'suggest that the bulk of the migration between NE India and E Africa - at least in autumn - takes place across the Indian Ocean from somewhere in this area in a continuing NE-SW trend.' Moreau (1972) further refined the area of departure to be concentrated mainly between 14°N and 16°N.

Outside the Indian Peninsula there are even fewer records. Ali & Ripley (1968) referred to an observation of many falcons in northern Afghanistan on 24 April (no date given but was most probably 1937), which they presumed were *amurensis*. However, these were subsequently re-identified by Meinertzhagen (1938) as Red-footed Falcons *F. vespertinus*, but the basis for changing the identification was not given. Surprisingly, and by way of contrast, there are no records from Pakistan (Roberts 1991).

Indian Ocean records

Perhaps not surprisingly, records from the few islands in the western Indian Ocean are as sparse as elsewhere along the route from NE Asia to southern Africa. Virtually the only records that exist are from the Seychelles and Maldives; on the latter islands it is a winter visitor in small numbers from November to March (Ash & Shafeeg 1994). In the Seychelles, including the Amirantes, the Seychelles Bird Records Committee have collected seven records involving up to eleven birds (mostly first winter) in the period late-November to early-March. These include up to four different birds during a ten-day period in December 2000 on Fregate and at least three records of birds remaining in the same territory for up to 3 months (Skerrett *et al.* 2001, A. Skerrett pers. comm.). By contrast, it has not been recorded on the Lakshadweep Islands which are further north and closer to the mainland of southern India (Kurup & Zacharias 1994) and there are no records from any of the islands closer to Africa - Comoros, Mauritius, Reunion and Madagascar (Brown *et al.* 1982, Sargeant 1992, Morris & Hawkins 1998).

Middle east/Arabian records

West of the Indian subcontinent it is regarded as either unknown (Pakistan) or a rare vagrant to the United Arab Emirates (two records July 1995 and March 2000, C Richardson pers. comm.). In Oman it is an irregular and uncommon spring migrant from mid-March to late-May and a rare autumn migrant from mid-October to late-December, and one record in winter. Most records are single birds or small flocks in spring with a maximum of 26 together in the Salalah area on 24 April 1992 (Eriksen & Sargeant 2000); in the same year a total of 201 birds were recorded between 23 April and 18 May (Ash & Nikolaus unpublished). In north Oman it is much less frequent with only three records: one collected at Sur 25 November 1901, male and female 16 April, and female 14 May 1997, both at Al Ansab Lagoons' near Muscat. These observations suggest regular spring and autumn passage through Oman, with higher numbers in spring than in autumn. The winter record was a juvenile at Salalah 23 December 1983 to 24 January 1984 (Eriksen & Sargeant 2000). The spring migration route of birds through southern Arabia, almost entirely restricted to the Dhofar coast, suggests that they have crossed directly from the Horn of Africa and from here they cross to Asia at some unknown route which avoids north Oman, Masirah Island, Muscat and UAE; they may possibly cross the remote areas around Ras Madrakah or Ras al Hadd where few observations have been carried out during migration. Elsewhere in Arabia there has been a recent (November 1984) record of a single bird in south Yemen (Ash 1989). It appears to be a very rare vagrant to Saudi Arabia; included in the few records that exist are two birds taken by Meinertzhagen out of a flock of a hundred near Mecca in April (undated) and later verified by B.P. Hall. Whilst this could have been part of the normal migration pattern, Moreau (1972) commented that this could have been due to the birds following a swarm of locusts.

Western Palearctic records

The first record of this extreme vagrant to the Western Palearctic was in April 1995 at the Straits of Messina, southern Italy, a well-watched raptor migration point (Corso & Dennis 1998). This has subsequently been followed by 5 others, all at the same location, in May 1998 and May 1999. The similarity between the dates of occurrence with that in the passage records through the Middle East is particularly noteworthy.

Arrival in Africa

First arrivals in southern Africa are from late November (Brown *et al.* 1982) but the southernmost parts of the wintering range are not occupied until early December. In Malawi, the centre of the wintering range, Amur Falcons are present from December to March but not until January and February are peak numbers of birds present. There are, however, extremely few records of birds arriving at coastal locations anywhere in East Africa. Britton (1980) gave only three coastal records from East Africa and of those only one - two at Pemba 23 November 1937 (Pakenham 1979) - is within the arrival period. The other two are Mikindani, Tanzania, in March and Kilifi, Kenya, in April.

In Somalia, one of the least explored countries in Africa, Ash & Miskell (1998) published details of two November records, one of which, interestingly (dating back to 1937), is of two birds 160 km offshore. Ash & Miskell also reported two birds (both presumably collected), an adult male and immature, at the coastal location of Obbia in January 1931. More importantly it is from Somalia that most evidence comes for an overland return route, with April records, from three years in the period 1979 to 1983, of flocks of up to 250 together in the south of the country. There are no records from either Djibouti (Welch 1984, 1985) or Socotra (Kirwan 1998).

In SE Kenya, southern and eastern Tanzania, Britton (1980) recorded the bird as a passage migrant in small numbers in November and December, and again in March and April. Britton gave few supporting details but included a record of over 1,000 which flew SSW over Dodoma (Tanzania) on 13 January 1956 (a late date for birds still en route to their wintering areas unless they had 'stopped-off' along the way. In addition, Britton (1980) reported that 'thousands occur in Ruaha NP' central Tanzania, though this record carries no date and it could be assumed to refer to passage times, since he goes on to mention only two other January records (from central Kenya and SW Tanzania), both without any numbers of birds involved. More recently Zimmerman *et al.* (1996) added that 'large flocks pass through the Tsavo region on southward migration' and that there are only a few records from northern Tanzania. An indication of the possible numbers of birds involved comes from a roost count of between 4,000 and 5,000 birds in Malawi in February 1951 (Benson 1951). In spring, Ash & Miskell (1989) recorded passage through Somalia as occurring mostly inland, suggesting that onward movement may also be overland. In support of this the very few coastal records in Tanzania and Kenya contrast with the many inland records from both countries, and also lends support for the theory of overland migration.

New records from Ethiopia

In November 1989 PC recorded at least three individuals between Dodola and Goba in the southeastern highlands of Ethiopia; these are the first substantiated records for the country (Ash pers. comm.). The species was looked for in the same area in subsequent years but it was not recorded again until November 1997 when DH saw 3 males and 4 females between Dodola and Adaba. This is an extensive plateau in the southeastern highlands extending *c.* 600 km north to south and *c.* 200 km at its widest point; the main habitat is short grassland, similar to that in the main wintering area further south. The plateau is well-known for its abundance of birds of prey since it is a particularly good area for Common Kestrels *F. tinnunculus*, Lanner Falcons *F. biarmicus*, Pallid *Circus macrourus* and Montagu's Harriers *C. pygargus*. The only subsequent record of Amur Falcon from Ethiopia was a first-winter bird at Nekemte, Wolega Province on 26 November 1998 (I. Robertson & M. Mellor pers. comm.).

Discussion

The paucity of records from the vast area between the Himalayas and southern Africa suggests that these birds either move unseen, or along a broad front from Asia to Africa which involves overland, coastal and transoceanic flight. On the evidence available it could be assumed that the birds cross the western Indian Ocean to make landfall along the coast of southern Kenya or northern Tanzania. The few records from islands in the Indian Ocean, together with a lack of any similar concentrations of birds further south along the seaboard of East Africa, tends to support this. It appears that the bird is capable of moving large distances overland via central and western India or by a shorter sea crossing in an arc route to the horn of Africa completely undetected.

Since most of the passage movements of birds across India and within Africa, i.e. from Tanzania to the main wintering area south of Malawi, are similarly unnoticed, it is highly likely that most of these are above observable limits, similar to the birds on passage through northern Burma reported by Smythies (1986). Within the wintering area the bird becomes extremely conspicuous, hunting for grasshoppers, locusts and termites in large and loosely social groups of up to several hundred over large areas of open country, particularly grasslands with scattered trees.

The evidence for a longer sea-crossing of the western Indian Ocean, from a departure point somewhere in southern India to Tanzania or northern Mozambique would be, on a direct crossing, in the region of 4,800 km and clearly be of several days duration. Whilst several other falcons move relatively long-distances, notably Eleonora's Falcon *F. eleonorae* and Hobby *F. subbuteo*, regular movements across such an expanse of open sea are unique for a raptor. The weather over the Indian Ocean is generally favourable in October and November for transoceanic crossing. The SW monsoon moves southward from its most northerly position over Kutch in mid-September to around 12°N at the end of October, this is overlain by northeasterly winds (the inter-tropical convergence zone - ITCZ) which become progressively dominant so that by December they prevail at all levels over the whole of the Arabian Sea. During the monsoon airflow rises rapidly from ground level to reach the overlying north-easterlies which by September are *c.* 3 km altitude and this wind then extends all the way west to the horn of Africa (N. Elkins, pers. comm.).

This sudden rise of air could easily facilitate the movement of a large number of migrant birds to altitudes above observable limits and set them on a heading between west and southwest. It would appear that the west coast of India north of about 13°N, particularly where the SW monsoon strikes the Western Ghats, is the most likely departure area; south of this area the airflow is more likely to carry them south into the Indian Ocean. Thus it would not be difficult for a migrant on a flight from India to Africa with a strong following wind at *c.* 3,000 m to make such a crossing. In support of this are the large number of November records in southern Kenya and NE Tanzania that suggest an arrival point of birds having made a direct crossing.

Maintaining a high-level, long-distance flight across large stretches of open water is, in all probability, extremely energy consuming and a journey which is unlikely to be completed (certainly every year by the entire population) without occasional occurrences on any available landfall along the route. During the SW monsoon storms are a frequent characteristic of the climate and are generally the reason for regular occurrences of similar long-distance transoceanic migrants such as Pacific Golden Plover *Pluvialis fulva* and Terek Sandpiper *Xenus cinereus* on Seychelles and Mauritius. It would therefore not be surprising for a similar sized long-distance migrant to make at least occasional (or exceptional) appearances under similar circumstances.

Whilst part of the population crossing the western Indian Ocean may undertake a direct high-level flight to the wintering area, it also seems equally likely that another part of the population undertakes a shorter, i.e. more northerly, sea-crossing. This is most likely on a heading between west and northwest from a departure point along the western coast of India with part of this population moving at height overland, borne aloft by the rapidly rising air currents ahead of the southwest monsoon. From the little that is known of the small number of records from Somalia, together with the growing number of records elsewhere in NE Africa and Arabia, these suggest that some birds make a shorter sea and/or partly overland crossing. The numbers of birds seen in Oman, particularly in spring, certainly suggest that a proportion of the birds return to the breeding area via a shorter sea crossing. Further work involving collation of detailed records and, in particular, satellite tracking of tagged individuals will clearly reveal more about the movements (including flight times and energy costs) and distances covered by these birds.

Although the main wintering area lies in south-eastern Africa, as described in the introduction, small numbers are occasionally recorded wintering in India, Sri Lanka, the Maldives and Seychelles, locations that are mainly along the postulated route followed by birds making the direct crossing of the western Indian Ocean.

Acknowledgements

We are extremely grateful to Dr John Ash, Tim and Carol Inskipp and Colin Richardson for their very helpful and constructive comments on an earlier draft of this paper. We would like to thank Tim Inskipp for clarifying details of the Indian subcontinent records; Iain Robertson for the third Ethiopian record; Jens Eriksen, Dave Sargeant and the Oman Bird Group for the detailed records from Oman; Phil Round for the records from Thailand, Richard Lewthwaite for southern China records and Adrian Skerret for providing details of the Seychelles records together with all those who kindly responded to the request for details of sightings along the passage routes. Norman Elkins was extremely helpful in commenting on and assisting with data on the pattern of the monsoon winds and the ITCZ, without which this paper would have greatly deficient.

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Observations on the nocturnal migration of the Kurrichane Buttonquail in northern South Africa

by J.J. Herholdt

Received 6 January 2000

The Kurrichane Buttonquail *Turnix sylvatica* occurs over most of sub-Saharan Africa, and is widespread in southern Africa except in the south and southwest (Colahan 1997, Maclean 1993). It avoids forests and deserts (Urban *et al*. 1986). It also occurs in southwest Europe, southern and south-eastern Asia, parts of Asia, Philippines, Sulus, Java and Bali (Urban *et al*. 1986).

The Kurrichane Buttonquail is considered to be an intra-African migrant (Urban *et al*. 1986) but little is known of its migration. Tarboton *et al*. (1987) and Irwin (1981) considered it to be nomadic in the Transvaal and Zimbabwe respectively. Wintle

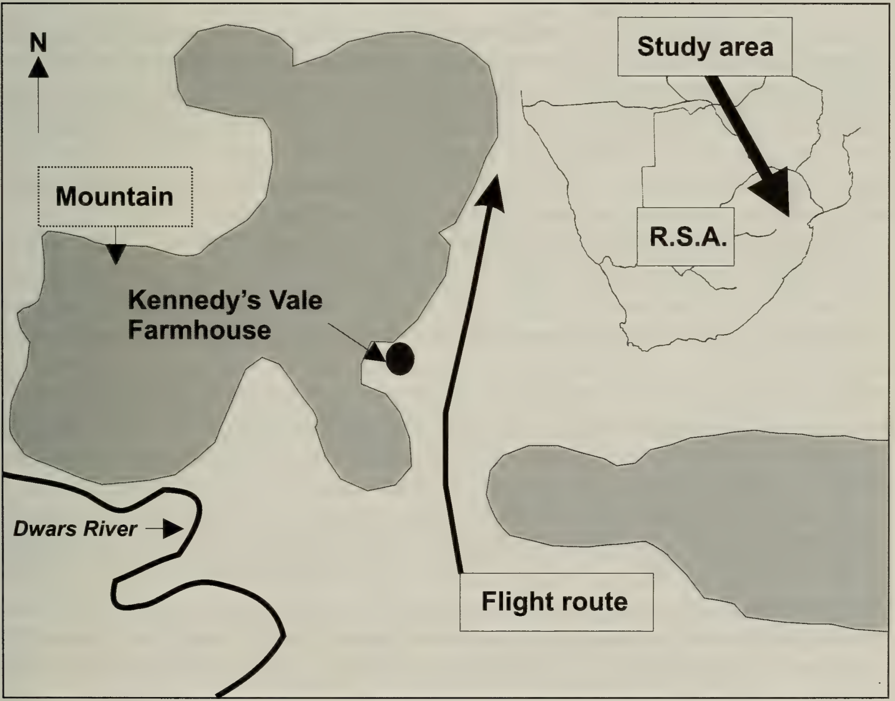

Figure 1. Map of the farm Kennedy's Vale (20°51'S, 30°08'E) showing mountains and supposed flight-route (arrow) of the Kurrichane Buttonquails.

(1975) thought it to be resident with local movements in the Matepatepa area of Zimbabwe.

Herremans (1994) recorded concentrations where good rains had fallen in Botswana. During a period of exceptionally high rainfall in 1988 in the Kgalagadi Transfrontier Park (formerly the Kalahari Gemsbok National Park), Kurrichane Buttonquails moved into the area in large numbers and the booming calls of displaying females could be heard all night (pers. obs.). This influx was quite abrupt, suggesting large scale and synchronized movement into the Park from elsewhere. This sudden influx of buttonquails was also evident by the large numbers of partially eaten carcasses found at nests of Barn Owls *Tyto alba* in the Park at that time (Herholdt 1993).

Del Hoyo *et al.* (1996) described birds being attracted to and colliding with artificial lights, windows and lighthouses at night, particularly in fog after heavy rain. They thought that buttonquails are capable of long distance movements by night. In Nigeria, at Ibadan, a Kurrichane Buttonquail flew into a lighted room at night, suggesting migration (Elgood *et al.* 1973). In Tsavo, in southeast Kenya, a similar observation was made when a single Kurrichane Buttonquail flew to a lighted wall of a building at night (Moreau 1972).

During the nights of 4 and 5 December 1999 observations on the nocturnal migration of Kurrichane Buttonquails were made at the farmhouse at Kennedy's Vale (20° 51'S, 30° 08'E), Mpumalanga Province, South Africa (Fig. 1). Both nights were overcast with occasional light drizzle and lightning on the skyline. The night of 4 December was calm, but a light southeasterly breeze blew on the night of 5 December. The whole area had received good rain (119 mm were measured in the immediate vicinity for November) and were covered in green stands of grass.

The first indication of Kurrichane Buttonquails was at 2300 h on 4 December, when a male was captured as it flew into the house. The outside neon light of the farmhouse and some interior lights in one room were on at the time. Nine dead buttonquails, which had been recently captured by domestic dogs, were found under the outside light. A torchlight search around the farmhouse revealed many buttonquails sitting all over the farmyard. By 0115 h on the morning of 5 December, 21 Kurrichane Buttonquails had been captured, and no more birds could be heard passing overhead. Dead birds were sexed and measured and captured birds were bagged and sexed, measured, ringed and released just after sunrise the same morning.

In the hand buttonquails occasionally uttered a soft "keoo" call, and at times the whole sky appeared to be filled with these soft calls, suggesting that the birds migrated in waves. Although the night was too dark to see the buttonquails in the sky, it was estimated that the birds must have been flying at 10 – 20 m above ground level. Some buttonquails landed in the yard, while others came crashing through trees to land on the ground. Some remained in shrubby trees and only took off when the trees were shaken.

The movement of calls indicated that the buttonquails flew in a northerly direction (Fig. 1), and most of those that landed took off again almost immediately, heading in the same direction. The mountains in the area may have funneled the buttonquails, resulting in the large numbers that flew over the Kennedy's Vale farmhouse (Fig. 1). Five buttonquails landed in the swimming pool: three were able to immediately take off again, the other two were rescued and later released. Some landed far from the outside light where it was totally dark and some even landed on another farmhouse without outside lighting. It was evident, from the large amount of calling, that only a small percentage of the buttonquails that passed overhead landed around the farmhouse.

The next night (5 December), buttonquails again passed northwards over the farmhouse from 1200 h – 0215 h, but in smaller numbers than on the previous night. The flights were few and far between and much less calling was heard. Only six birds were captured.

Of the 36 buttonquails sexed and measured, only two were females. Males were lighter in weight than females (34.5 ± 2.9 (SD) g vs. 45.5 and 48.0 g) and had shorter wings (78.1 ± 2.1 (SD) mm vs 84 and 91 mm). Tail, tarsus and exposed culmen did not differ between the sexes. The females, apart from being larger, also had a much larger and richer rufous upper breast patch (Wintle 1975).

Acknowledgements

Dr. W.R. Tarboton, Dr. A.C Kemp and Mr. H. Chittenden are thanked for giving inputs and supplying literature, which helped to improve this paper. Mr. C.J. Smith is thanked for assisting with the ringing and measurements of the buttonquails. Mr. P.J. Gräbe is thanked for assisting with the drawing of the map.

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The correct scientific name of the White-bellied Heron

by Michael Walters

Received 5 June 2000

This species has been variously called *Ardea insignis* Hume (1878, based on a *nomen nudum* by Hodgson) or *imperialis* Baker (1928) and, in the light of the biography of Hodgson by Cocker & Inskipp (1988), in which no mention of the problem was made, it seems desirable to present facts that give Hodgson his full credit. Furthermore, the "evidence" on which the name *insignis* is currently accepted is confused and tenuous, and requires clarification. Biswas (1960) stated: "The name should be *Ardea insignis* Hume. Hume's name is available, since its citation as a synonym of *Ardea nobilis* Blyth and *Ardea sumatrana* Raffles are [sic] based on misidentification". Ripley (1982, p. 12) accepted the name *insignis* for the bird he had previously called *imperialis,* citing Biswas as his sole authority. Sibley & Monroe (1990, p. 304) also adopted *insignis* but without mentioning Biswas, remarking that Ripley had correctly resolved the issue. Inskipp *et al*. (1996, p. 103) adopted *insignis*, citing Sibley & Monroe as their authority and without mentioning either Biswas or Ripley. Thus the question as to which name is correct appears to rest solely on the terse statement of Biswas. Was he correct?

The traditional scenario of the nomenclatural history of this bird is given by Hancock & Elliot (1978) as follows. In 1844 Hodgson used the name *insignis* for a heron "of which insufficient clues as to the identity were given". The *nomen nudum* could have been used again by Hume when validating Hodgson's name, but for the fact that Gray (1844 & 1871) had placed it in the synonymy of two other species, *nobilis* and *sumatrana*. Baker (1928) allegedly proposed that this invalidated Hume's (1878) resuscitation of the name and proposed the substitute name *imperialis*. This assertion was denied by Biswas (1960). In fact, Baker's account states that he was proposing the new name because Hume's name was *preoccupied* by Hodgson's, i.e. that the earlier name referred to a different taxon from that of Hume. However, Hancock & Elliot considered that "no more than circumstantial evidence of errors on Gray's part" was sufficient to "tip the balance" in favour of *imperialis.* Unfortunately, most of the arguments used here are wrong, for there is no question as to the correct identity of Hodgson's bird.

Hodgson did not first use the name in 1844. It previously appeared in his unpublished paintings, of which Hodgson (1844) is a catalogue. This painting was plate 61, fig. 2, based on specimen no. 645 in Hodgson's collection. In 1844, Hodgson listed a specimen of *A. insignis* collected by himself, no. 645. This specimen, and another, are still in the Natural History Museum, Tring, collection, reg. nos. 1843.1.13.1236 and 1237. Their original Hodgson labels have been removed, but the register quite clearly gives the number of both specimens alongside the registration numbers as 645. There can be no doubt, therefore, that these two birds are Hodgson's "types", and are also the adult and juvenile skins listed by Sharpe (1898) as from the Hodgson collection.

The supposed relegation of *insignis* to the synonymy of *nobilis* by G.R. Gray (1844) is also based on a misconception. In this, Gray listed Hodgson's two specimens of *insignis*, which he called the Great Indian Heron, and prefixed the name *insignis* with *nobilis* Blyth, giving the reference "Ann. of Nat. Hist, 1844, p. " (i.e. with a space where the page number should be). In other words, the name *nobilis* had not been published at the time Gray went to press, thus *nobilis* was a *nomen nudum* at this point! Gray evidently thought that Blyth's name would prove to be the same as Hodgson's, and merely placed it first because Hodgson's was a manuscript name. There was, however, no question as to the identity of Hodgson's name. The same error occurred in Gray (1846). Here again, the page number of Blyth's reference has been omitted, but in his own personal copy of this catalogue (now held in the Zoology Library, The Natural History Museum) Hodgson had written in "p. 500". G.R. Gray (1871), having realised that Blyth's *nobilis* was not the same as *insignis,* but was actually a synonym of *Ardea goliath* Cretzschmar, a bird hitherto known only from Africa, made the further error of placing *insignis* in the synonymy of *A. sumatrana* Raffles (1822).

Much of this is, in fact, academic. Under the terms of ICZN (1999), a *nomen nudum* is not an available name, and therefore may be reused for the same or another taxon. There is no suggestion that the subsequent placing of the name in synonymy prevents its reuse. Biswas was therefore right in claiming that Hodgson's (1844) name was available to Hume. Unfortunately, the publication of Hodgson's name does not satisfy the provisions of Article 12.2 of the Code, since this specifically excludes a specimen as constituting an "indication" for a new species. This prevents the name *insignis* being credited to Hodgson. Notwithstanding the existence of the specimens and the plate, both of which are quite identifiable, the name remained a *nomen nudum* until resuscitated by Hume. The correct name is therefore *Ardea insignis* Hume.

Acknowledgement

I am grateful to Storrs Olson who discussed this paper with me at more than one stage of gestation, and made many helpful comments.

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Monitoring populations of Red-footed Boobies *Sula sula* and frigatebirds *Fregata* spp. breeding on Aldabra Atoll, Indian Ocean

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Received 29 June 2000

Frigatebirds and boobies have experienced considerable persecution and disturbance in the western Indian Ocean over the past century, and during this time populations of both groups declined or disappeared on many islands (Feare 1978, Carboneras 1992, Orta 1992, Cheke 2001). Some colonies are now protected but the size and population trends are poorly known for most Indian Ocean colonies. We report counts of frigatebirds and boobies made on Aldabra Atoll in March-May 2000, and compare them with previous counts to assess population trends. We also make recommendations for future monitoring, and comment on the use of small boats as a censusing platform for seabirds nesting in mangroves.

Aldabra Atoll supports the largest breeding population of frigatebirds in the Indian Ocean, and the second largest in the world, with c. 6,000 pairs of Lesser Frigatebird *Fregata ariel* and 4,000 pairs of Great Frigatebird *F. minor* (Reville 1983). The only other breeding site in Seychelles is nearby Cosmoledo Atoll which supports 200-400 pairs of each species (Rocamora & Skerrett 2001). Despite their global importance the Aldabra frigatebird colonies have been censused only twice, in 1967 (Diamond 1971, 1975) and in 1976-1977 (Reville 1980, 1983).

Aldabra also supports a large breeding population of Red-footed Boobies *Sula sula*, estimated at 6,000-7,000 breeding pairs (Diamond 1971, 1974). Within Seychelles and the western Indian Ocean this is exceeded only by the Cosmoledo population (10,000-12,000 pairs; Rocamora & Skerrett 2001). The Aldabra population has been censused only once, in 1967-1968 (Diamond 1974). This is the only booby species known to nest on Aldabra.

Methods

Between 12-20 March 2000 AEB visited Aldabra and censused all the known frigatebird colonies and most of the Red-footed Booby colonies, covering more than half of the lagoon shoreline of the atoll in a 4 m long ocean kayak (K-light fold-up, Feathercraft Ltd., Vancouver, Canada). The kayak permitted access to most of the small channels among the mangroves and between small islets. Between 20 March and 9 May 2000 MB surveyed the remaining lagoon shore using a small motor boat, and R. Wanless counted boobies around Île aux Cedres. We generally remained 8-10 m away from the edge of the mangroves and shore, except where forced to pass through narrower channels, and plotted our locations on 1:25,000 orthophoto-maps as we moved along the shore. A hand-held tally counter was used to count frigatebird nests and, where common, booby nests. Binoculars were used to check and count a few nests which could not be approached within *c.* 30 m because of shallow water.

Red-footed Boobies were in two stages of breeding, which were counted separately. Most nests contained an adult apparently incubating. We checked *c.* 20 nests and all contained eggs, but some other birds might have been brooding small chicks. Colonies also contained large nestlings or newly fledged juveniles from an earlier nesting stage (hereafter called fledglings) sitting in or near nests. These were separated from older second-year immature birds by appearance: the fledglings had duller, more uniform brown plumage, sometimes with traces of down, paler and duller pink feet and legs, and black bills (Diamond 1974). A few large downy chicks were present in March and included in the fledgling count.

To include booby nests deep in the canopy, where adults on and off nests could not be distinguished from the boat, Diamond (1974) multiplied the total number of adults seen by an "incubating index", which was the ratio of adults seen on nests (incubating or brooding) divided by those definitely not on a nest. We chose not to apply this correction for several reasons. Adults were often roosting in areas where there were no nests. The ratio would need to be re-calculated for each section of colony to account for spatial and temporal variations in the attendance of off-duty adults. We encountered relatively few situations where we could not determine whether an adult was on a nest or not, although this sometimes required minor shifts of the boat position and the use of binoculars. Consequently, we made no effort to estimate the nests which might have been associated with the small numbers of adult boobies

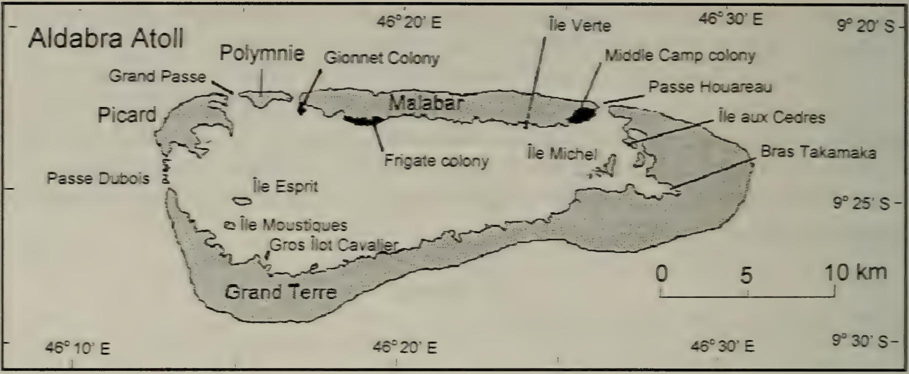
Aldabra Atoll
46° 20' E
Île Verte
46° 30' E
9° 20' S
Polymnie
Gionnet Colony
Middle Camp colony
Grand Passe
Passe Houareau
Malabar
Picard
Île aux Cedres
Frigate colony
Île Michel
Bras Takamaka
Passe Dubois
Île Esprit
9° 25' S
Île Moustiques
Gros Îlot Cavalier
0 5 10 km
Grand Terre
46° 10' E
46° 20' E
46° 30' E
9° 30' S

Figure 1. Map of Aldabra Atoll, showing islands and other features mentioned in the text, and the locations of the three frigatebird colonies (black areas).

seen deep in the canopy. The numbers given are our actual counts of visibly occupied nests. From the boats we could usually see deep into the canopy and our subjective impression was that we missed fewer than 10% of the booby nests, except for the colonies in and near Bras Takamaka. Booby nests along the mangrove fringe in Bras Takamaka and around Île aux Aigrettes were counted using binoculars from the opposite shore, 0.8-1.2 km away, and were probably under-estimated. We were unable to visit all the small channels in the mangroves of Bras Takamaka (Figure 1), where Diamond (1974) had reported several hundred booby nests, but MB and experienced rangers collectively estimated that there were *c.* 100 nests there, based on their experience during several explorations over the past two years.

At the time of the census both species of frigatebirds had large chicks. On Aldabra, fledglings of the two species can be distinguished using head colour (white or creamy in Great, and reddish in Lesser: Diamond 1975), but this takes experience (Reville 1983:69) and was not attempted. Counts of both species were pooled. About 1-2% of the nests contained an adult bird, which might have been shading a smaller chick (or less likely an egg) or in an empty nest. These were included in the total count. Reville (1983) estimated that boat counts recorded 80-90% of the frigatebird nests present, based on comparisons with counts from blinds inside colonies.

Results and discussion

Red-footed Booby

This species shows plumage polymorphism in the Indian Ocean (Le Corre 1999, Cheke 2001), but we saw only white morph adults, and no white-tailed brown morphs. Boobies nested in small clusters of nests scattered along the mangrove fringe of the lagoon, with a few nests also in *Pemphis acidula* shrubs and other trees. Nearly all nests were on the lee shores of islands or inlets, sheltered from the SE wind (the strongest winds). We counted 4,095 nests with a sitting adult and 838 fledglings (Table 1). Most of these (71% of the nests with adults and 54% of the fledglings) were in areas not used for nesting by frigatebirds. Those boobies which did nest within the frigatebird colonies usually chose trees or bushes with no frigatebird nests, but this was not quantified. The majority of boobies therefore nested apart from frigatebirds, although frigatebirds often roosted nearby.

It is difficult to compare our counts with Diamond's (1974) census in 1967-1968 because his counts were made at a different time of year (between October and February), and the scale of Diamond's map makes it difficult to determine the boundaries of his count areas. The type of boat used for the counts (dinghy in Diamond's study, kayak in ours) should not affect the counts. Diamond counted the "Main Colony",

TABLE 1.

Distribution and numbers of Red-footed Booby nests in March-May 2000, compared with data from Diamond's (1974) census made between Oct 1967 and Feb 1968.

		This study		**1967-1968 (Diamond 1974)**			
Island	Location	Adults on nests	Fledglings and juveniles	Adults on nests	Calculated no. of nests	Fledglings and juveniles	Date of Diamond's survey
Picard	Lagoon and Grand Passe	28	7	11	12	2**	25 Nov
Malabar	Gionnet frigate bird colony	10	20	0	0	42**	11-12 Oct
Malabar	Gionnet to Camp Frigate colony	114	9	-	-	-	-
Malabar	Camp Frigate frigatebird colony	628	164	159	187	2	31 Jan
Malabar	Camp Frigate to Île Verte	1,022	110	90	125	10	15 Feb
Malabar	Île Verte to Middle Camp colony***	965	156				
Malabar	Middle Camp frigate bird colony***	534	200	1,912	2,412	613**	12 Feb
Grand Terre (west end)	Passe Houareau, Île aux Cèdres and un-named island	569	172	81	157	9	8 Nov & 4 Jan
Grand Terre (southwest end)	Île aux Aigrettes and outer Bras Takamaka	125*	-*	-	-	-	-
Grand Terre (southwest end)	Bras Takamaka inner channels	100*	-*	11	52	240**	13-14 Feb
Grand Terre (east end)	Gros Îlot Cavalier	0	0	13	13	1	8 Dec
Total		**4,095**	**838**		**2,277**	**2,958**	**919**
Within frigatebird colonies		**1,172**	**384**		**2,071**	**2,599**	**615**
Outside frigatebird colonies		**2,923**	**454**		**206**	**359**	**304**
Malabar Island totals		**3,273**	**659**		**2,161**	**2,724**	**667**

* Rough estimate of adults on nests, no estimate of fledglings

** Diamond's count for these areas included all immatures, not just fledglings and juveniles

*** Diamond's "Main Colony" covers these two areas between Middle Camp and Île Verte, and the Bras Takamaka colonies twice, in October-November and again in February. He counted all other areas once, most in February. Considering only the February counts, which were closer to the months of our counts, Diamond's total for Aldabra was 2,277 adults on nests which he estimated represented 2,958 nests, including those not visible in the canopy (Table 1). Our count of nests with adults in 2000 was thus 80% higher than the 1967-1968 count, if we apply no correction for invisible nests to either data set. Comparing only Malabar Island, which contains the bulk of the boobies and was well covered by both censuses, the count of 3,273 nests with adults in 2000 was 51% higher than in 1967-1968 (Table 1).

Diamond's (1974) February 1968 estimate for "Main Colony" (1,912 adults on nests with no correction for invisible nests) was higher than the 1,499 nests counted in March 2000 (Table 1), but this difference might be partly due to our interpretation of where the boundary of "Main Colony" lay. In 2000 there was no clear boundary of the colonies; small clusters of nests were scattered along most of the southern Malabar shore. The biggest difference between the two counts was in the west of Malabar, including the Gionnet and Frigate frigatebird colonies. We found 1,774 nests here whereas Diamond (1974), who explored the area thoroughly (pers. comm.), reported only 249 nests with sitting adults in 1967-1968. Red-footed Boobies have greatly expanded their colonies in this part of Malabar Island, probably as a result of the cessation of human exploitation and disturbance which was common there until 1967 (Diamond 1975, Reville 1980).

The counts of fledglings appeared to be higher in 1967-1968 than in 2000 (Table 1). This comparison is not meaningful, however, because breeding success might have differed among the years; Diamond (1974) sometimes pooled data from fledglings and older, second-year immatures; and at the time of our March 2000 census some fledglings had already left the colonies to roost elsewhere and were not counted.

We found no evidence of boobies nesting on Polymnie Island, Île Moustique, Île Esprit, Île Michelle, Passe Dubois, along the southern lagoon shores of Grand Terre from Passe Dubois to Bras Takamaka, or on any islets in these areas (Figure 1). The small colony of 13 nests at Gros Îlot Cavalier on the shore of Grand Terre in 1967-1968 (Table 1) was not occupied in 2000.

Frigatebirds

Frigatebirds were found in only three colonies on the lagoon shores of Malabar Island: Gionnet (which included Gros Îlot Gionnet), Frigate, and Middle Camp (Figure 1). These were the only colonies active during Reville's (1980, 1983) extensive research in 1976-1977. At that time all three colonies contained both species, but the bulk of the Great Frigatebirds nested at Middle Camp and the Lessers at Frigate (Table 2). We had insufficient time in 2000 to identify or count all the adult birds to confirm these distributions, except to note that the proportions of each species in the three colonies seemed similar to those in 1976-1977. In the 1960s frigatebirds also nested in Bras Takamaka in the southeast corner of the lagoon (Diamond 1971, 1975), but this area was not used in the 1970s (Reville 1980, 1983) or since then (MB, pers. obs.).

In the 1960s the frigatebirds on Malabar Island, particularly in the Frigate colony, were frequently disturbed and predated by people, and Reville (1983) suggested that the low numbers in that colony, greater use of the Middle Camp colony and nesting in Bras Takamaka were all consequences of this disturbance. Since 1967 the colonies have been protected and human disturbance generally limited to occasional visits by tourists in boats, restricted to the Gionnet colony and supervised by the Aldabra staff. The Frigate colony expanded, apparently due to immigration of Lesser Frigatebirds from Middle Camp and Bras Takamaka, and the latter colony ceased to be used (Reville 1983).

We counted 3,100 active frigatebird nests, nearly all containing large chicks (Table 2). It is difficult to make comparisons with previous counts in 1967 (Diamond 1975) and 1976-1977 (Reville 1983) because the counts were made at different times of year, and both of these authors used various factors to convert counts of adults or nests into the estimated total breeding population. We have used the least modified data, where possible, to compare with our counts (Table 2).

Diamond (1975) did not count all the nests in the large Middle Camp colony, but sampled sections of mangroves and extrapolated the results to estimate the total colony. He provided no direct estimates of active nests, but stated that the count of adult females in trees corresponded closely with the number of nests, and this count is summarised in Table 2. Using various conversion factors, Diamond (1975) estimated the maximum nest count at 1820 Great and 5352 Lesser Frigatebirds, and we applied his conversion factors to estimate the numbers in the four colonies used at that time (Table 2).

Reville (1980, 1983) did not use sampling or adult:nest ratios, but counted directly all the nests in each colony from a boat when there was maximum occupancy between August and November. He found little difference between 1976 and 1977 in the numbers and distribution of the two species in the three colonies (Table 2). The totals given in Reville (1983) are slightly higher than those given in his thesis (Reville 1980), and we assumed that the former are the revised, accurate counts. He found no significant difference between years in the breeding success of monitored subcolonies of either species (Reville 1980). Consequently, we applied his fledgling:peak-nest-count ratio (0.67 for Great and 0.25 for Lesser; Reville 1983) to estimate the average number of fledglings in 1976 and 1977 (Table 2). This provides a crude estimate of the number of occupied nests expected late in the season, to compare with our March 2000 data. Our count was 29% higher than this estimate of fledglings for both species. The greatest numerical difference was in the Frigate colony.

Reville (1983) concluded that there had been little change in the numbers of frigatebirds between 1967 and 1976-1977, and that the differences between his and Diamond's (1975) estimates were due to differences in methods of counting nests and in estimating maximum nest counts. The distribution and relative proportions of the two species had, however, changed, and were explained by the cessation of human persecution, especially at the Frigate colony (Reville 1983). The relatively

TABLE 2

Counts of frigatebirds at the Aldabra colonies in 1967 (Diamond 1975), 1976-1977 (Reville 1983) and March 2000 (this study). See the text for methods used to adjust previous counts to allow comparison with the March 2000 count.

		Colony				
Date and measure		**Gionnet**	**Frigate**	**Middle Camp**	**Bras Takamaka**	**Total**
Oct-Nov 1967: estimated nests from female count						
	Great Frigatebird	46	42	583	60	731
	Lesser Frigatebird	0	0	1,428	257	1,685
	Both species	**46**	**42**	**2,010**	**317**	**2,415**
	% per colony	*1.9*	*1.7*	*83.2*	*13.1*	*100*
Aug 1967: estimated maximum nest count						
	Great Frigatebird	160	87	1,554	19	1,820
	Lesser Frigatebird	0	0	4,660	692	5,352
	Both species	**160**	**87**	**6,214**	**711**	**7,172**
	% per colony	*2.2*	*1.2*	*86.6*	*9.9*	*100*
Aug-Nov 1976 and 1977: maximum nest count						
1976	Great Frigatebird	234	976	1,508	0	2,718
	Lesser Frigatebird	131	2,817	93	0	3,041
	Both species	**365**	**3,793**	**1,601**	**0**	**5,759**
1977	Great Frigatebird	192	545	1,511	0	2,248
	Lesser Frigatebird	116	2,369	355	0	2,840
	Both species	**308**	**2,914**	**1,866**	**0**	**5,088**
Mean 1976-1977	Great Frigatebird	213	761	1,510	0	2,483
	Lesser Frigatebird	124	2,593	224	0	2,941
	Both species	**337**	**3,354**	**1,734**	**0**	**5,424**
	% per colony	*6.2*	*61.8*	*32.0*	*0.0*	*100*
1976-1977: estimated number of fledglings						
Mean 1976-1977	Great Frigatebird*	143	510	1,011	0	1,664
	Lesser Frigatebird**	31	648	56	0	735
	Both species	**174**	**1,158**	**1,067**	**0**	**2,399**
	% per colony	*7.2*	*48.3*	*44.5*	*0.0*	*100*
March 2000: count of active nests						
	Both species	**283**	**1,668**	**1,149**	**0**	**3,100**
	% per colony	*9.1*	*53.8*	*37.1*	*0.0*	*100*

*Estimated number of fledglings assuming 67% breeding success in Great Frigatebirds (Reville 1983)

**Estimated number of fledglings assuming 25% breeding success in Lesser Frigatebirds (Reville 1983)

small differences between 1976-1977 and 2000 could be explained by variations in the proportion of adults breeding (see Reville 1980, 1983), or differences in breeding success prior to the fledgling census.

Our conservative conclusion is that the numbers and distribution of frigatebirds in 2000 were similar to, or slightly higher than those in 1976-1977. Obviously, a more detailed investigation is needed to show if these populations are indeed stable. This should include identification of the species in each colony and ideally cover several years to account for variations in breeding success. The work of Diamond (1975) and Reville (1980, 1983) provides a valuable baseline for such comparisons.

Changes in booby and frigatebird populations

The available data do not permit firm conclusions about changes in the Aldabra populations of boobies and frigatebirds. The few counts used differing methods and sampled at different times in the breeding seasons. There are insufficient data to account for variations in the proportions of adults breeding and in breeding success. The number of pairs and the spatial distribution of Red-footed Boobies nesting during the NW monsoon season have both increased since 1967-1968. The area with the most complete coverage, Malabar Island, showed a 51% increase in adults incubating during the NW monsoon season (Table 1). Part, or maybe all, of this increase can be attributed to the cessation of predation and reduction of disturbance by people after 1967. Although Feare (1978) thought that humans were unlikely to have affected boobies on Aldabra, it is difficult to imagine that the boobies were spared the predation and disturbance from fishermen who were killing frigatebirds for food on Aldabra, especially on western Malabar (Diamond 1975, 1979, Stoddart 1984). Most of the colonies of Red-footed Boobies in the Indian Ocean have disappeared as a result of human disturbance, introduced predators, habitat change and direct predation (Feare 1978, Carboneras 1992).

As discussed above, there were dramatic changes in the distribution and relative proportions of the frigatebird colonies between 1967 and 1976, but Reville (1983) concluded that the total breeding population had changed little during that interval. The differences between the 1976-1977 and 2000 censuses appear relatively minor and might be explained by variations in the proportions of adults breeding or in breeding success. It is surprising that the numbers of breeding frigatebirds have not increased noticeably since the period of exploitation and disturbance by humans in the 1960s.

Recommendations for future monitoring

Direct counts of both booby and frigatebird nests from a small boat provide an efficient censusing method. The complex sampling techniques used for both groups by Diamond (1974, 1975) are not necessary. Reville (1980, 1983) reached the same conclusion, and used direct counts of all nests to census frigatebirds. Estimates of the total breeding populations require extrapolations from nest counts to account for nests missed, asynchronous laying and laying of replacement clutches. Long-term monitoring, however, is best done using the actual nest counts, with minimal extrapolation or correction of data. With suitable planning, logistical support and tidal cycles, most of the booby and all the frigatebird nests in Aldabra Atoll can be simultaneously counted from a small boat in 10-14 days. Estimating year-round populations of boobies will require several counts to cover the different phases of breeding.

Aerial photography of colonies has been used to census seabird colonies, with mixed success (Harris & Lloyd 1977, Buckley & Buckley 2000). This method might be suitable for frigatebirds and boobies on Aldabra, when aircraft are available at the landing strip on nearby Assumption Island. Simultaneous boat sampling will be needed to ground-truth aerial photographs and identify the ratios of breeding and non-breeding birds appearing in the photographs.

Monitoring of Red-footed Boobies

Laying appears to occur in at least two fairly synchronised pulses through the year on Aldabra. Some pairs have eggs while others have large chicks or dependent fledglings. Ideally one should count the numbers of nests during incubation in each breeding pulse. Monitoring of laying chronology will be needed to plan these censuses for the optimal date. At least one complete census can be done at the same time as the complete count of frigatebirds in mid-February through March (see below). Counts twice a year will also allow an index of breeding success to be calculated (ratio of large chicks or fledglings to the earlier count of nests with eggs).

Counting roosting adults in proximity to the nests should be considered, but is not essential unless Diamond's (1974) method of using nest:adult ratio is applied to estimate nests obscured by the tree canopy. When reporting census data a clear distinction should be made between direct counts and estimates made using this method.

Monitoring of frigatebirds

The most complete counts should be done at the peak of incubation, after laying is completed but before many nests have failed. For frigatebirds this raises the problem of disturbance, because during early incubation nests which are vacated are generally plundered by males seeking nesting material (Reville 1980). Clearly any census undertaken during this time should be limited to parts of the colony which can be counted from a boat 30 m or more from the nests to minimise disturbance and nest desertion. Counts made during the late chick-rearing stage, such as our count in March, are far less likely to cause nest failure because there are very few adults seeking nesting material at this time, and even if adults are flushed, the counts focus on the large chicks remaining in the nests.

As a compromise we suggest the following protocol for monitoring both populations and breeding success of frigatebirds at Aldabra. The method can be adapted for use in other areas. First, make annual counts of nests during early incubation in sections (sub-colonies) of each of the three colonies. These sections should be selected to allow counting from a boat at least 30 m offshore to avoid disturbing the birds. Identify the species of adult in each nest during these incubation counts to monitor changes in the relative proportions in each colony. Second, repeat these counts of selected sub-colonies at intervals through the breeding season, or at least during the late chick-rearing phase, to provide an estimate of breeding success.

Third, make a complete annual count of large chicks in all three colonies during late chick-rearing (mid-February through March). This count can be converted to a total nesting population by applying the nest success in the selected sub-colonies, or can be compared with similar counts in other years without any conversions. Identify all adults present during the late chick-rearing census to confirm the distribution of species in the colonies. Monitoring the effects of tourists at the Gionnet colony should continue.

Monitoring of the breeding chronology will be necessary to plan the timing of the census. Most laying in Great Frigatebirds occurs between mid-August and mid-November, but laying in Lesser Frigatebirds is more variable and prolonged, with most eggs laid between June and November (Reville 1983). Other seabirds, such as White Terns *Gygis alba* nesting in the mangroves, can be counted at the same time as the counts of boobies and frigatebirds, although additional effort will be needed to include tern nests not near these colonies.

Using kayaks for censusing

An ocean kayak proved to be an ideal platform for censusing frigatebirds and boobies nesting in mangrove trees. The shallow inlets and narrows around the colonies were easily negotiated with the kayak, which had a draught of 10-20 cm, and it could be towed or carried across shallower banks. The kayak could be used over a much wider tidal range than a larger boat with a deeper draught or motor, thus providing longer access to colonies. At low tides no boats could be used in Aldabra Atoll. The kayak could manoeuvre through the narrow channels around the colonies faster than a powered boat, reducing the time needed for censusing. A motor boat was used to carry the kayak to distant sites and provide a safety back-up. Finally, the kayak was virtually silent, greatly reducing the level of disturbance compared with a motor boat. Reville (1980) found that the noise of the motor was a significant cause of disturbance, and rowed or punted a dinghy around the frigatebird colonies to reduce disturbance.

Wind and rough water can limit travel by kayak, even in the lagoon. Most of our censusing was done along sheltered shores but required travel across exposed or open water. An ocean kayak, with a covered deck and sealed spray-skirt, permitted travel in choppy water where an open canoe or small rowing boat would be risky. Kayaking experience, a two-way radio, and supporting motor boat are essential safety requirements for this work.

Acknowledgements

Research by AEB in Seychelles was funded by a grant from the Second Dutch Trust Fund to BirdLife Seychelles. MB was the warden of Aldabra, employed by the Seychelles Islands Foundation. We thank the following for their important contributions to this project: logistics manager Susan Barclay, boatman Philip Baccus, ranger Tony Jupiter, and other staff and volunteers on Aldabra for logistical support, boat transport, advice and friendship; Ross Wanless (University of Cape Town), Rachel Wiseman, and Jacques Harter for assistance and companionship at the field camp; Ross Wanless for help in counting boobies; David Rowat and the crew of the M.V. "Indian Ocean Explorer" for a very pleasant and rewarding voyage by AEB; the director, Nirmal Jivan Shah, project manager Kirsten Henri, and staff of BirdLife Seychelles for their support and encouragement; Lindsay Chong-Seng, the director of the Seychelles Islands Foundation, for permission for AEB to work on Aldabra and other assistance; and Anthony Cheke, Tony Diamond and Chris Feare for helpful comments on an earlier manuscript.

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Novel food use by Grey Kingbirds and Red-necked Pigeons in Barbados

by Louis Lefebvre, Simon M. Reader & Sandra J. Webster

Received 28 July 2000

The frequency with which birds adopt feeding innovations may be a good operational measure of behavioural flexibility (Lefebvre *et al.* 1997), but its usefulness depends upon accurate recording of novel behaviour patterns and new food sources. We describe here two instances of feeding innovations in birds of Barbados: consumption of maize spillage at a harbour warehouse by Red-necked Pigeons *Columba squamosa* and "bread-hunting" by Grey Kingbirds *Tyrannus dominicensis*.

The Red-necked Pigeon is a frugivorous West-Indian Columbid that, according to Goodwin (1983), is largely, if not entirely, an arboreal feeder. In over 15 years of field work in Barbados, we have never seen it join the ground-feeding Columbids that forage on seed and food scraps in urban and coastal areas (the Zenaida Dove *Zenaida aurita* and the Common Ground Dove *Columbina passerina*) or on grain spillage at the harbour (*Z. aurita* and the Feral Pigeon *Columba livia*)(Dolman *et al.* 1996). On 25 January 2000, a single adult *C. squamosa* was observed perching in late afternoon on a warehouse ledge in the Barbados Mills compound, Deep Water Harbour, close to Zenaida Doves that roost there overnight. The Red-necked Pigeon was later seen perching on a barbed wire fence in front of the warehouse, then feeding on the ground on whole kernels of maize that had been spilled from a truck. Raffaele *et al.* (1998) stated that, aside from its dietary specialisation on arboreal frugivory, *C. squamosa* sometimes feeds opportunistically on the ground at dairy farms. This is the first report that such opportunistic ground feeding may include spillage at a harbour warehouse, a site that offers an abundant food source often exploited by Columbids (Murton *et al.* 1972; Lévesque & McNeil 1986), at the risk of frequent disturbance by humans and machinery, which the "very wary" (Devas 1970) Red-necked Pigeon normally avoids.

Our second observation, "bread-hunting" by Grey Kingbirds, occurred at food patches set out to attract five other avian species in the field: Carib Grackles *Quiscalus lugubris*, Lesser-Antillean Bullfinches *Loxigilla noctis*, Shiny Cowbirds *Molothrus bonariensis*), Zenaida Doves and Common Ground Doves (Webster & Lefebvre in press). In urbanised coastal areas of Barbados, these five species feed together routinely on bread and other food scraps (Dolman *et al.* 1996). Island birds sometimes have broader niches than their continental counterparts, with birds on many islands being relatively tame, allowing them to respond rapidly to new food sources.

From 16 to 26 January 2000, we conducted field experiments that presented bread, rice and seed to these species at six sites in three adjacent areas of the parish of St-James, Barbados. Grey Kingbirds often feed in the vicinity of the five species but have never been seen to join them in over 15 years of similar field experiments. In the

January 2000 experiments, however, kingbirds were observed on 25 occasions to take bread from the patches, using their normal insect hunting technique. The kingbirds (usually one, but up to three individuals) typically perched on a low branch of the tree nearest to the patch, swooped down very rapidly to take a piece of bread without landing, and then flew back to the branch to eat the bread. Only larger (1 cm^2) pieces were taken. On many trials, more than a dozen birds from the five usual species fed at the 30 cm diameter patch; kingbirds sometimes failed to feed on these trials, hovering over the food and swooping down without picking up bread, or simply perching on a nearby branch, looking down at the patch. On three occasions, a kingbird picked up bread that had been moved away from the patch by a grackle and on one occasion, in June 1999 (field experiments with similar patches; Webster & Lefebvre in press), the bread was clearly kleptoparasitised from a grackle's beak. No attacks were seen at the patch itself, despite the interspecific aggression known to be frequently used by *T. dominicensis* (Raffaele *et al.* 1998), but other species often appeared defensive during a kingbird swoop. Zenaida Doves, for example, directed raised wing threats at the swooping kingbird. Kingbirds were also seen (in March 2000) chasing a flying bullfinch and grackle that were carrying bread, swooping down on birds emerging from a baited trap and then retrieving the dropped bread, and (in April 2000) kleptoparasitising bread from a bullfinch. In April and May 2000, perching kingbirds were thrown bread and observed catching it in mid-air on several occasions.

Kingbirds normally specialise on catching insects in flight, as well as taking other invertebrates, lizards, berries and, more rarely, small fish (ffrench 1991; Lefebvre & Spahn 1987; Raffaele *et al.* 1998). They are not reported to eat bread or other food scraps (Evans 1990; Raffaele *et al.* 1998; Voous 1983). In fact, the only interaction we could find in the literature between a Tyrannid flycatcher, an Eastern Wood Peewee *Contopus virens*, and bread specifically describes rejection of this food (Wyat & Stoneburner 1978). Our observation adds one more case to the large anecdotal literature on bread as a novel food type in birds (Baugniet *et al.* 1978; Bernard 1976, 1985, 1986, 1988; Hammer 1978; Hastwell 1975; Jacobs 1972; Kington 1975; Osborne 1981; Owen 1973; Reynolds 1974).

Acknowledgements

This work was funded by an NSERC grant to LL and a Commander C. Bellairs postdoctoral fellowship to SMR. We are grateful to Simran Kurir for her help with the German language literature.

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Comments on George F. Gaumer and the provenance of a Giant Kingbird *Tyrannus cubensis* specimen from Mexico

by P. William Smith

Received 22 August 2000

The Giant Kingbird *Tyrannus cubensis* is currently considered a rare and endangered species endemic to Cuba (Collar *et al.* 1994, AOU 1998). In the 19th century it may have been commoner and more widespread. Prior to 1890 several specimens were collected in the southern Bahama islands (summarized by Buden 1987), and one was claimed for Isla Mujeres, off the eastern coast of the Yucatán Peninsula, Mexico, by

Salvin (1889) and other contemporaneous authors. The basis of the latter record is a specimen in The Natural History Museum, Tring, UK (BMNH 1888.1.1.1691) dated 25 February 1886, attributed to George F. Gaumer. This record has recently been considered "questionable" (*e.g.* AOU 1998).

George F. Gaumer (1850-1929) was an American physician/naturalist, originally from Kansas, who resided primarily in the State of Yucatán, Mexico, during the latter part of the 19th and the early 20th centuries (Parkes 1970). According to his letters on file in the zoology library of The Natural History Museum, London, which I recently reviewed, Gaumer was commissioned in late 1885 by Osbert Salvin and Frederick Godman to undertake a collecting expedition to the Bay Islands of Honduras. Gaumer, who then practised medicine near Mérida, proposed to stop en route at various Mexican islands, particularly Holbox and Mujeres, from which little material had been collected previously. His party, including Gaumer's wife and others, departed in November 1885 and was shortly beset by disease. They lingered on Isla Mujeres in December 1885, before heading for Isla Cozumel, where Gaumer had collected earlier in 1885 for Salvin and Godman, and where he had previously established a base. Gaumer hoped that his party could recuperate there before continuing.

After returning to Isla Mujeres briefly in February 1886, his group continued on to Roatán in the Bay Islands, despite the fact that illness continued to dog them. Evidently, Gaumer had to spend more time during this period tending to himself and others than directly in collecting, although he did prepare the specimens, which included insects and plants as well as birds, brought to him by members of his party and others. In July 1886, he dispatched a batch of material to Salvin which included over 700 birds, 142 from Isla Mujeres. The birds each contained a tag rubber-stamped with Gaumer's name, and the island and month where the specimen was collected or received and then prepared. A serial number, which evidently cross-referenced a separately enclosed log of the material, was also hand-written on the tags. Gaumer asked Salvin to identify the material item-by-item and offered more detailed notes as needed. Later, Gaumer dispatched additional material in a similar fashion. He remained based in the Bay Islands until 1887, and in 1888 he wrote to Salvin from Mexico thanking him for finally responding with identifications of the specimens he had sent.

Salvin and Godman attached their own tags to each avian specimen, preprinted with the stamped information from Gaumer's tags. For the specimens from Isla Mujeres, the date on the new tags was preprinted "December 1885" regardless of whether Gaumer's tags were stamped "December" (1885, the vast majority) or "February" (1886, a minority). This discrepancy still remains on the tags of all February specimens that I examined, where Gaumer's tag also remains attached, but for one. The single exception to this pattern that I noted involves the specimen of *Tyrannus cubensis* (then *T. magnirostris*) mentioned above, which was accessioned in the Museum's catalogue among a large batch of Gaumer's material. This specimen's tags differ from the others in that "December" is crossed out on Salvin and Godman's tag, replaced by "Feb. 25, 1886", and "25, iris brown" is hand-written after Gaumer's "February" stamp. I found none of Gaumer's other tags that still remain from that expedition so annotated.

Evidently, someone then recognized the significance of this particular specimen. That person is unlikely to have been Gaumer, whose correspondence shows little expertise in identification or avifaunal matters. Although Gaumer did collect in Cuba in the late 1870's for A. Boucard, many of the specimens he secured there are now also in The Natural History Museum, Tring, and show relatively primitive preparation skills. They contain no examples of *T. cubensis*. This specimen's significance was most likely recognised by Salvin, Godman, or one of their associates after its arrival in England, the additional information being taken from Gaumer's log or notes. Salvin's (1889) paper about Gaumer's collection states the date (Feb. 25, 1886), as well as the fact that the species is generally considered confined to Cuba, showing that the specimen's importance was known at least shortly after its arrival at the museum.

This record of *T. cubensis* for Mexico stood essentially unquestioned until Howell & Webb (1995) placed it in their hypothetical category, apparently based on Gaumer's reputation among North American museum curators for careless and sloppy labelling (Parkes 1970). This is also presumably the basis for its recent questioning by AOU (1998), for they had not done so previously (AOU 1983). Gaumer's questionable reputation may have originated from remarks by Paynter (1955), who doubted the location of a number of Gaumer's specimens, particularly those of the Plain Chachalaca *Ortalis vetula* from the various Mexican islands to which Gaumer attributed them. Yet, Paynter (1955) acknowledged that some of Gaumer's unexpected locations had been confirmed by himself or other collectors (e.g. Black-throated Blue Warbler *Dendroica caerulescens*), and that some of Paynter's own specimens (e.g. Ochre-bellied Flycatcher *Mionectes oleagineus* then *Pipromorpha oleaginea*) would not stand up to the level of scrutiny he applied to Gaumer's. Inasmuch as Gaumer acknowledges in his correspondence that on this trip he prepared specimens brought to him by others, it seems reasonable to believe that some of them may have come from nearby locations.

Although I failed to locate Gaumer's log or his more detailed notes at The Natural History Museum, no good reason seems to exist to doubt the overall provenance of this specimen. If Gaumer's 1885-6 collection contained other specimens of apparent Cuban origin, one might have more reason to be suspicious. One cannot be certain, however, that 1888.1.1.1691 was secured on Isla Mujeres itself rather than at some nearby place. Gaumer acknowledged that he did not collect many of his specimens himself during that period, and the month and location on his tags seem to reflect when and where the specimen was received and prepared, not necessarily collected. It seems improbable, however, that only this particular specimen would have been brought across the Yucatán Channel from Cuba, some 200 km to the northeast, in an unprepared state. Collectively, Gaumer's letters suggest a man of integrity and honourable intentions, so deliberate fakery seems far-fetched. Furthermore, as Salvin (1889) recognized, *T. cubensis* by then had established a pattern of appearing in the southern Bahamas at least during the winter months (Buden 1987). Thus a record at that season directly across the Yucatán Channel from the Cuban mainland does not strain credulity.

Whilst history may not be kind to Gaumer because of the apparent lack of detail and precision on some of his labels (Parkes 1970), I believe that this record should stand as credible evidence of the Giant Kingbird's once-wider range, to include the North American continent, even if the precise location where this particular specimen was taken is considered somewhat uncertain. Given the species' modern rarity (Collar *et al.* 1994), it is unlikely to be known whether the Giant Kingbird formerly had a wider breeding range, or merely wandered beyond Cuba during the non-breeding season.

Acknowledgements

At The Natural History Museum, Ann Datta (London); Robert Prŷs-Jones, Michael Walters, and Effie Warr (Tring), provided considerable assistance throughout this project. Richard Banks and Steve Howell offered useful comments, and Joann Constantides of the Josselyn Van Tyne Memorial Library of the Wilson Ornithological Society secured needed literature. I thank them all.

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The Fawn-breasted Brilliant *Heliodoxa rubinoides*, a hummingbird species new to Bolivia

by Swen C. Renner & Karl-L. Schuchmann

Received 22 August 2000

The Fawn-breasted Brilliant *Heliodoxa rubinoides* is a polytypic medium-sized hummingbird (length 11-13 cm, body mass *c.* 7-10 g) without marked sexual dimorphism. It is widespread from the Andes of Colombia to Ecuador and Peru (Fig.1).

Here we report its first occurrence from Bolivia at Cocapata, *c.* 1,000 km south of its presently known range.

Material and methods

We studied 80% of the available scientific material, i.e., 125 *H. rubinoides* specimens from Colombia, Ecuador, Peru, and one recently discovered specimen from Bolivia. Morphometric measurements, e.g., bill length, wing length and fork of tail (difference between inner and outermost rectrix), taken with a digital caliper, were compared statistically (Man-Whitney U-test, $p < 0.05$). We analyzed plumage patterns by means of an illuminating magnifying glass (x 10) under constant artificial light conditions. Descriptions of colours (capitalized, numbers in brackets) refer to Smithe (1975).

Description and distribution of *Heliodoxa rubinoides* subspecies

Three subspecies of *Heliodoxa rubinoides* are presently recognized, showing the following differences:

H. r. rubinoides: Bill of males and females black, thick, almost straight. Males dorsally Parrot Green [160], rectrices and upper tail coverts Olive Green [48] with Cinnamon [39] rachis. Wings Sepia Brown [119] with Cinnamon secondaries and Parrot

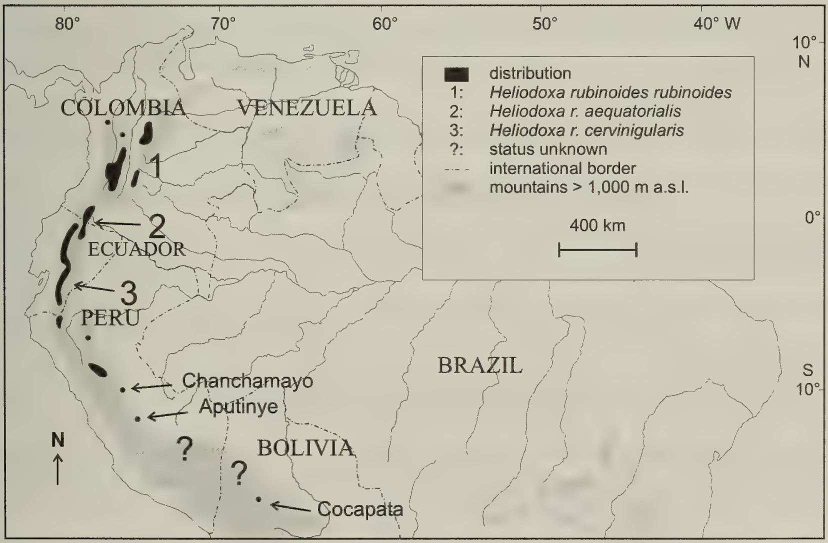
80°
70°
60°
50°
40° W
10° N
0°
S 10°
COLOMBIA
VENEZUELA
1
2
ECUADOR
3
PERU
Chanchamayo
Aputinye
BOLIVIA
?
?
Cocapata
BRAZIL
N
▇ distribution
1: *Heliodoxa rubinoides rubinoides*
2: *Heliodoxa r. aequatorialis*
3: *Heliodoxa r. cervinigularis*
?: status unknown
-·- international border
mountains > 1,000 m a.s.l.
400 km

Figure 1. Distribution of *Heliodoxa rubinoides*. The new location in Bolivia (Cocapata) and the formerly southernmost localities (Chanchamayo, Aputinye) in Peru are indicated by arrows.

TABLE 1

Morphometric characters of the three subspecies of *Heliodoxa rubinoides*, showing mean ± SD and sample size (in brackets). p: significance levels of the mensural characters between subspecies, ns: not significant, (a): *aequatorialis*, (r): *rubinoides*, (c): *cervinigularis*. All measurements in mm, body mass in g.

Taxon	Sex	Bill length	p	Tail furcation	p	Wing	p	Body mass
aequatorialis	♂	27.3 ± 1.3 (43)	0.01 (r)	10.5 ± 2.6 (38)	0.02 (r)	71.2 ± 2.1 (43)	0.01 (r)	8.4 – 9.2 (5)
	♀	29.1 ± 2.8 (23)	0.01 (r)	5.4 ± 1.6 (25)	ns (r)	66.2 ± 2.1 (24)	ns (r)	7.7 (1)
rubinoides	♂	28.0 ± 1.4 (15)	ns (c)	9.2 ± 4.2 (13)	0.01 (c)	68.2 ± 5.2 (15)	ns (c)	7.4 (1)
	♀	31.8 ± 1.0 (4)	0.01 (c)	7.5 ± 0.5 (3)	0.03 (c)	66.5 ± 2.5 (4)	ns (r)	-
cervinigularis	♂	29.4 ± 1.6 (12)	0.01 (a)	12.0 ± 2.6 (10)	0.01 (a)	70.8 ± 3.7 (12)	0.01 (a)	7.2, 8.0 (2)
	♀	30.7 ± 0.9 (13)	0.01 (a)	6.3 ± 1.6 (8)	ns (a)	64.4 ± 2.4 (12)	ns (a)	7.2 – 10.2 (9)
Specimen from Bolivia	♂	27.8		11.7		72.5		-

Green wing coverts. Chin Parrot Green, throat centre with a small circular iridescent Vinaceous [3] patch. Ventral side Cinnamon, Parrot Green glittering discs on flank and chin. Immature females lack metallic throat patch, appearing with increasing age and always smaller than that of males. Chin and belly Cinnamon mostly without green discs. Immatures of both sexes similar to adult female but completely lack iridescent throat patch.

H. r. aequatorialis: Similar to nominate race except wing coverts are Cinnamon.

H. r. cervinigularis: Similar to nominate race, except for larger size and homogeneously Parrot Green flanks.

Mensural characteristics and body masses of these subspecies are given in Table 1.

Habitat and geographical distribution

Heliodoxa rubinoides is found at Andean elevations between 1,500 and 2,700 m in Colombia, Ecuador, and Peru. Records from the southwestern Cordillera in Colombia suggest vertical movements to altitudes below 1,000 m (Hilty & Brown 1986). *H. rubinoides* is uncommon and mostly local throughout its distributional range (Chapman 1917).

The nominate race inhabits humid mountain ranges and páramos of Huila, Cauca, Santander, and forest fragments in Antioquia, Colombia. *H. r. aequatorialis* occurs in cloud forests of the eastern Cordillera of Nariño, Colombia, and Sucumbíos, Ecuador. *H. r. cervinigularis* is found in similar habitats throughout the western Cordillera of Ecuador and in parts of Pasco, Huánuco, Junin, and Cuzco, Peru.

The two southernmost distribution records of *H. r. cervinigularis* are from Chanchamayo, depto. Junin (11°03'S, 75°19'W) (Hilty & Brown 1986, Fjeldså & Krabbe 1990, Schuchmann 1999) and from Aputinye, depto. Cuzco (13°00'S, 72°32'W), both in Peru (one specimen, Senckenberg Museum Frankfurt, # 915, leg. J. Kalinowski, July 1890; sight records, Parker & O'Neill 1980).

From Charles Cordier, Bolivia, our institute in Bonn obtained in 1982 a specimen of *H. rubinoides* from Cocapata (16°57'S, 66°43'W), north of Cochabamba (adult male, ZFMK # 84.113), Bolivia. The specimen is attributable to the subspecies *cervinigularis* since all morphological and mensural characters lie within the range of this taxon (Table 1). Charles Cordier collected this specimen at an elevation of *c.* 3,000 m in *Polylepis* forest. The Bolivian record signifies a considerable range extension (1,000 km south of Aputinye, Cuzco, Peru), and according to Remsen & Traylor (1989) and Remsen (pers. comm.) is the first for Bolivia (see Fig. 1). The apparent geographical discontinuity between the Peruvian and the Bolivian distribution is most likely due to low collecting activities along the western Andean ranges of these countries (Stephens & Traylor 1983, Paynter 1992).

Acknowledgements

For loaning specimens under their care we thank: N. Rice, The Academy of Natural Sciences of Philadelphia, Philadelphia; P. Sweet, The American Museum of Natural History, New York; D. Willard, The Field Museum of Natural History, Chicago; C. Cicero, Museum of Vertabrate Zoology Berkeley, Berkeley; M. Robbins, Natural History Museum Kansas, Kansas; J. Hinshaw, Museum of Zoology Michigan, Michigan; G. Mayr, Forschungsinstitut und Naturmuseum Senckenberg, Frankfurt; S. Frahnert, Museum für Naturkunde Berlin, Berlin; G. Veron, Museum Histoire Naturelle de Paris, Paris; M. Adams, Natural History Museum, Tring; R. Winkler, Naturhistorisches Museum Basel, Basel; C. Bracker, Zoologisches Museum Hamburg, Hamburg; and J. Fjeldså, Zoologisk Museum, København. The American Museum of Natural History, New York, provided a Collection Study Grant to S. C. R. and K.-L. S, and the Jessup and McHenry Fund of The Academy of Natural Sciences of Philadelphia, Philadelphia, supported S. C. R

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Roosting site of the Sombre Hummingbird *Campylopterus cirrochloris* (Trochilidae) in southern Bahia, Brazil

byYoshika Oniki, Karl-L. Schuchmann, Edwin O.Willis, Tomas Sigrist & Gérard Baudet

Received 18 September 2000

Ornithologists have rarely discovered hummingbirds at their roosting sites. Trochilids of highland Andean regions (e. g., *Oxypogon* and *Oreotrochilus* sp., see Schuchmann 1999) shelter at night in caves or under overhanging vegetation. Sleeping places of the Rufous-tailed Hummingbird *Amazilia tzacatl* are protected by leaves (Skutch 1931), whereas the Long- billed Starthroat *Heliomaster longirostris* roosts on exposed thin twigs of treetops (Skutch 1972). Here we report on a nocturnal roosting site of the Sombre Hummingbird *Campylopterus cirrochloris* (taxonomy follows Schuchmann 1999) in southern Bahia, Brazil.

During field work at Fazenda Jueirana, an area of evergreen lowland forest (*c*. 15° 17' S, 39° 04' W) and next to the Una Biological Reserve in southern Bahia, Brazil, at 1645 h on 16 February 2000, we saw a Sombre Hummingbird arrive on an isolated horizontal shoot of a vine *c*. 13 m above the ground, over a dirt road. Perching with head southwest, it gave a long (several minutes) and loud series of chipping notes. It then settled with its body at an angle of *c*. 30° above horizontal, with belly feathers covering its feet. The head was tilted up, with the bill 60° above horizontal (Fig. 1). A vine leaf near its head provided camouflage and, perhaps, some protection from rain. Willis, Sigrist and Baudet noted that the bird was still present when dark (1827 h).

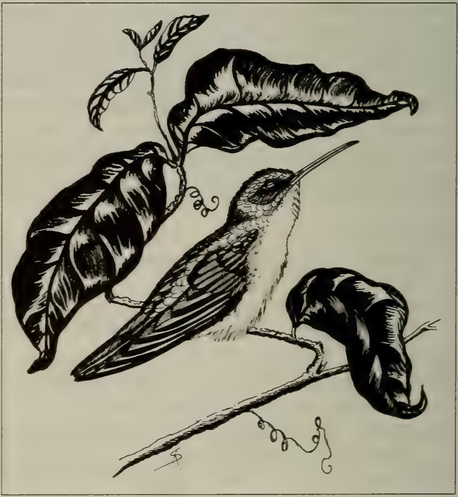

Figure 1. A Sombre Hummingbird *Campylopterus cirrochloris* roosting under leaves. Drawing by T. Sigrist.

We returned to the place the next day at 1725 h. The hummingbird was already calling as before, perched a few centimeters out from the previous day. A vine leaf now sheltered the hummingbird from above. From 1752 h on the bird became silent and immobile with its head angled up. Another hummingbird (species unidentified) was still searching for food nearby.

When dark (1825 h) a Reddish Hermit *Phaethornis ruber* was still active.

The rather early roosting of the Sombre Hummingbird could be related to the bird hunting habits of pygmy owls. We heard the Least Pygmy-Owl *Glaucidium minutissimum* calling nearby as early as 1729 h.

Acknowledgements

We thank the Volkswagen Foundation (grant no. I/70 451) for financial support of our field work, and the owner of Fazenda Jueirana, Mr. Antonio Leiva, and his workers for their hospitality. Publication no. 19 of the Institute for Studies of Nature, Rio Claro, Brazil.

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A new subspecies of Red Knot *Calidris canutus* from the New Siberian islands

by Pavel S. Tomkovich

Received 20 September 2000

The Red Knot has a largely disjunct arctic breeding range, with different subspecies described from several of the mostly discrete breeding areas (e.g. Piersma & Davidson 1992, Engelmoer & Roselaar 1998). Red Knots breeding in the Palearctic generally have been assigned to only one, the nominate *canutus* (*e.g.* Vaurie 1965, Johnsgard 1981), or two subspecies: *canutus* from the Taimyr peninsula and *rogersi* from further east - Wrangel island (*e.g.* Kozlova 1962, Portenko 1972) and, more recently, also Chukotka (Stepanyan 1975, Kistchinski 1988). Tomkovich (1990, 1992) further separated the easterly populations, assigning birds from only Chukotka to *rogersi*, with Wrangel island birds being grouped with Alaska breeding birds as subspecies *roselaari*. This subspecies is believed to migrate to the Americas, whereas *rogersi* migrates to Australia and New Zealand.

The subspecific status of Red Knots breeding on the New Siberian (Novosibirskie) islands, geographically central between the other Siberian breeding areas, has been the subject of debate. Roselaar (in Cramp & Simmons 1983) was uncertain as to which subspecies these birds belonged, but mapped them as *rogersi* (Roselaar 1983). Their short bill and wing length (measured from museum specimens) indicated closer similarity to birds from Chukotka (*rogersi*) than Taimyr (*canutus*) (Stepanyan 1990, Tomkovich 1990, 1992, Engelmoer & Roselaar 1998). Stepanyan (1990) and Engelmoer & Roselaar (1998) assigned Red Knots from the New Siberian islands to *rogersi*. However, Tomkovich (1990, 1992) found no plumage differences between specimens from Taimyr and New Siberian islands, but these birds did differ from the more easterly populations in having darker rufous on their upper body parts. On these grounds he retained New Siberian Island birds in *canutus*, but suggested that they migrate to the Pacific coasts of Asia/Australasia where they would co-occur with *rogersi*. Ringing data have recently confirmed that birds from the New Siberian islands spend their non-breeding season in north-western Australia (Lindström *et al*. 1999) and probably also New Zealand (Anon. 2000). This is in contrast to *canutus* from Taimyr which migrate through western Europe to West Africa (e.g. Piersma *et al*. 1992, Tomkovich *et al*. 2000).

During the 1990s a larger number of study skins, along with a recovery of a ringed bird, from the New Siberian islands have become available. This permits a reappraisal

TABLE 1

Bill length and wing length (mm) variation in three Siberian breeding populations of Red Knots, based on museum skins.

	Bill	Wing						
	Range	Mean	S.D.	n	Range	Mean	S.D.	n
Males								
C. c. canutus Taimyr Peninsula	29.0 – 36.1	33.27	1.99	30	158 - 171	163.75	3.07	30
C. c. piersmai New Siberian Is.	29.0 – 31.6	30.19	0.86	13	150 - 166	157.45	4.66	11
C. c. rogersi Chukotka	28.7 – 33.5	31.78	1.54	10	157 - 166	161.90	3.12	10
Females								
C. c. canutus Taimyr Peninsula	32.5 – 39.3	35.13	2.00	12	163-173	167.33	3.30	12
C. c. piersmai New Siberian Is.	31.3 – 34.4	32.97	0.89	9	158 - 173	163.07	5.23	7
C. c. rogersi Chukotka	31.6 – 35.3	33.52	1.17	9	162 - 170	165.56	2.87	9

of the subspecific status of Red Knots from the New Siberian islands. On the basis of plumage characteristics, morphometrics and migration routes differing from Taimyr *canutus* birds, and plumage and morphometric differences from Chukotka *rogersi*, this population is sufficiently distinct as to warrant separate subspecific status. The type specimen of the subspecies *rogersi* is an adult male in breeding plumage collected in spring from Shanghai, China (Japan at the time of description) (Mathews 1913). Since it is now known that birds breeding on both New Siberian islands and on Chukotka use this migration route there is some uncertainly as to which population this type specimen belongs. Tomkovich (1990) and Tomkovich & Serra (1999) confirmed that the original description of *rogersi* matches the plumage characteristics of the Chukotka population, *contra* the 'preference' of Engelmoer & Roselaar (1998) "to consider the Knots from New Siberian islands as *rogersi*". Furthermore the original description of 'hind-neck grey with dark shaft-lines' agrees with the colouration pattern of Chukotka birds but not that of New Siberian birds.

Specimens of Red Knots from the New Siberian islands held by the Zoological Museum of Moscow State University (ZMMU), Russia were used for detailed description of plumage characteristics. Comparisons of morphometrics were made using these specimens plus specimens in the Zoological Institute, St. Petersburg, Russia, measured previously by the author. Most specimens of Red Knots from the New Siberian islands are adults, collected in the period 5 June to 10 July. All plumage comparisons with other subspecies were made with birds collected during this same period of the year. Standard measurement techniques (*e.g.* Prater 1977) were used, with the exception that wing length was measured by pressing the wing against a ruler without straightening the wing (i.e. the flattened chord), so as to avoid risk of damage to the specimens. Sexes were compared separately since Red Knots have some sexual size and plumage dimorphism (*e.g.* Tomkovich 1992, Engelmoer & Roselaar 1998). Plumage colours were described according to Smithe (1974, 1975, 1981), with the number of each colour indicated in brackets in the following description.

Calidris canutus piersmai subsp. nov.

Holotype

Specimen no. R-81642, ZMMU, preserved as a study skin: adult male collected on 5 June 1956 at Bolshoy Lyakhovsky island, New Siberian archipelago by V. D. Lebedev (Plate 1). Collector's label contains the following information (in Russian): *Phalaropus fulicarius* male, island B. Lyakhovsky, southern coast, 5/VI.56. Coll. Lebedev V.

Paratypes

Nine specimens in ZMMU. Two adult females from the same locality as the holotype: R-81640 collected on 11 June 1956 by V. R. Filin and R-81641 collected on 14 June 1956 by V. D. Lebedev (sex of the latter bird with "?"). One adult female (R-114065) collected on 2 August 1994 at SW Kotelny island by E. E. Syroechkovski, Jr. Four males (R-114050-051, 066, 127) and two females (R-114052-053) collected on 10 July 1994 at western Faddeyevsky island by E. E. Syroechkovski, Jr. and Y. A. Red'kin. One

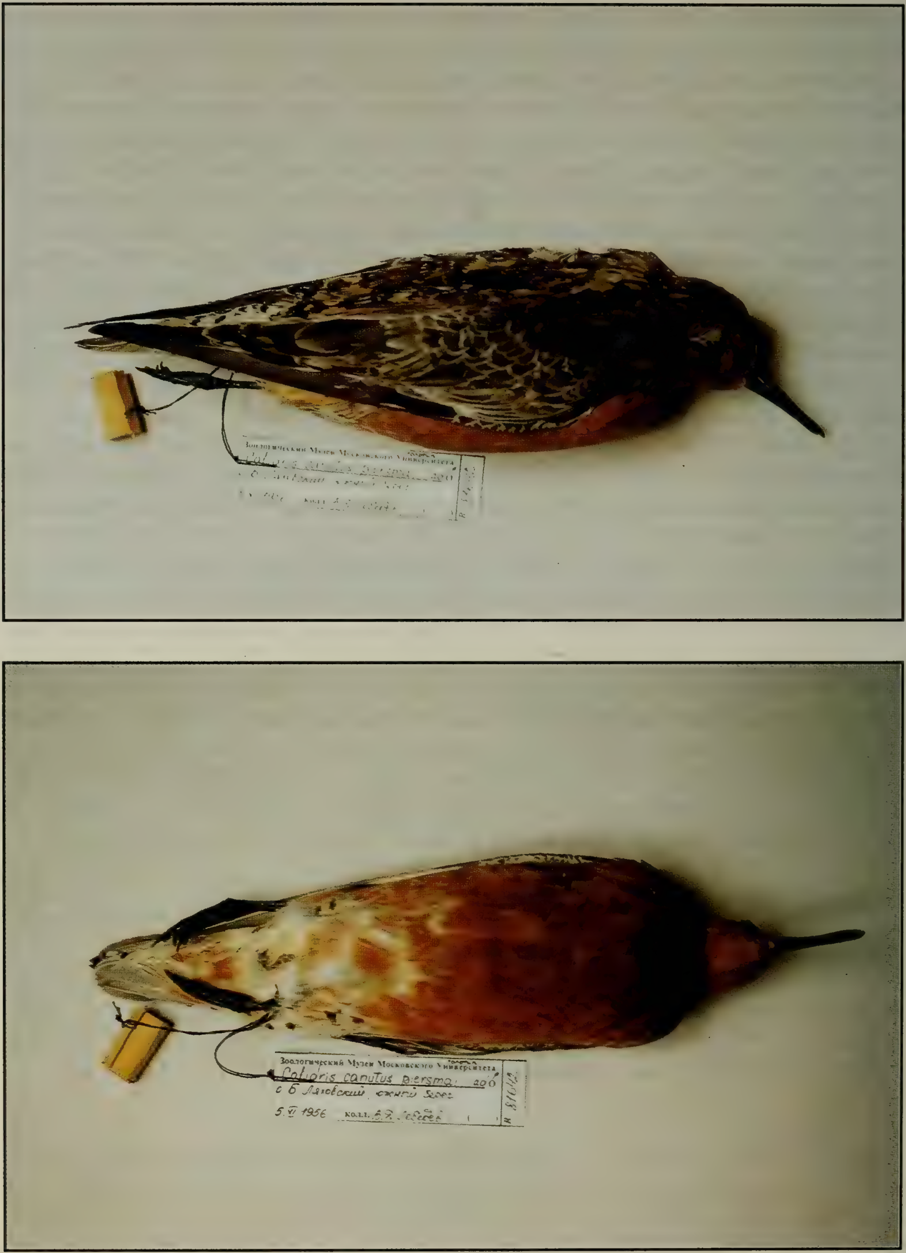
Зоологический Музей Московского Университета
Calidris canutus piersmai
с б Ляховский, южный берег
5.VI 1956 колл.

Plate 1. Holotype of *Calidris canutus piersmai* subsp. nov. Upper, dorsal and lower, ventral aspects

more specimen, male collected together with the latter birds on 10 July 1994 by Y. A. Red'kin, is deposited at The Natural History Museum, Tring (no. 2000.4.1).

Description of holotype

Crown, nape, mantle and scapulars mostly Sepia (119) with slight green and violet polish, mottled with Kingfisher Rufous (240), although some scapular feathers are Vandyke Brown (121) and some 'rufous' paired subterminal spots and edges are as light as Buff (124). Some mantle feathers have 'rufous' edges completely worn off. 'Rufous' on hindneck is slightly lighter than on the crown and mantle. Tertials are of the same pattern as other upperparts, but with almost no 'rufous' colour. Some rump and upper tail-coverts are coloured with 'rufous' of different tint. Supercilium, chin, throat, foreneck, breast and belly are Robin Rufous (340), whereas vent and undertail-coverts are about half and half white and 'rufous' with a few blackish spots on sides. Upper greater coverts of secondaries are a little bit darker than Olive Brown (28), greater coverts of primaries and lesser coverts are Vandyke Brown (121), median coverts are a mixture of feathers of these two colours. Many of the coverts, especially greater and inner, are fringed with white. Flight feathers are quite fresh. Bill 30.3 mm, wing 153 mm, tarsus 29.0 mm.

Etymology

The name is given in honour of Dr. Theunis Piersma, the Dutch ornithologist most deeply devoted to various worldwide studies of the Red Knot.

Diagnosis

The smallest in size among world subspecies of Red Knot. Differs from *C. c. rogersi* by more deeply rufous colour on both upper- and underparts, presence of rufous colour on hind-neck, more black on back and lesser development of white on belly, vent and undertail. Differs from *C. c. canutus* by absence of contrast between upper wing coverts and darker back feathers, and by more limited white on edges of median primaries.

Size and plumage comparisons

The difference in both bill and wing lengths (Table 1, and Tomkovich 1990, 1992) is the least with *rogersi*, being insignificant in females but significant in males (*t*-test: $p<0.01$ for bill, $p<0.05$ for wing), while it is well expressed in comparison with *canutus* ($p<0.01$ for bill in females and $p<0.001$ for bill and wing in males). Colours on the upper- and underparts of the body are the same as in *canutus* from Taimyr, but differ from *rogersi*. 'Rufous' edges on the upper body feathers are smaller than in *rogersi* and, together with paired subterminal spots, are deeper in colour, varying from Buff (124) to Kingfisher Rufous (240) or Cinnamon-Rufous (40), most often being Cinnamon (39) and Tawny (38). In *rogersi* these edges and spots usually are Pale Horn (92) or Warm Buff (118), sometimes of Cinnamon (39). The dorsal "rufous" colour of some *canutus* and *rogersi* specimens can be very pale, Drab-Gray (119D), or even approach white, Pearl Gray (81), but this was true of none of the available *piersmai* specimens.

The 'rufous' colour on the hindneck is similar to the crown and back, being only slightly lighter, unlike *rogersi* in which the hindneck is typically without 'rufous' colour.

The underparts vary in colour from occasional True Cinnamon (139) to more typical Robin Rufous (340), generally richer than in *rogersi*, which is usually True Cinnamon although varying from Pale Pinkish Buff (121D) to Robin Rufous (340). White on the belly, vent and undertail is less developed than in *rogersi*, and in males always with a varying number of Tawny (38) feathers among the undertail coverts (few *rogersi* birds have these).

Apart from size, differs from Taimyr *canutus* by colouration of wing. Main colour of upper wing coverts (apart from greater coverts and a number of bright feathers which moulted in the pre-breeding period in some specimens) is usually Vandyke Brown (121) or sometimes paler Drab (27), thus being on average darker than the Glaucous (79) colour of most *canutus* birds (some may have Vandyke Brown). As a result, at least on the bent wing, it lacks contrast with the dark colour of the bird's back, which is Sepia (119) fading to Fuscous (21), while it does contrast in *canutus*. In *rogersi,* the colour of the upper wing coverts varies a lot, but the contrast between these and the back feathers is absent even in specimens with light coloured upper wing coverts (Glaucous, 79) due to stronger light mottling of the birds' backs. The white outer edges of inner primaries that protrude from under greater wing coverts are narrower than in *canutus*.

A black-and-white photograph of a live adult male of *piersmai*, captured at a nest on Faddeyevski island on 10 July 1994, is published in Lindström *et al*. (1999).

Distribution

The new subspecies *piersmai* probably breeds on all large and most small islands of the New Siberian archipelago. Currently, breeding has been confirmed by the finding of nests or unfledged chicks on Faddeyevsky, Kotelny, Novaya Sibir and Bolshoy Lyakhovsky islands (Pleske 1928, Rutilevski 1958, Lindström *et al.* 1999). It is also very probable on Stolbovoi island, where a female was collected with an egg almost ready to be laid (Rutilevski 1963). In the non-breeding season, it can be found mostly on sea coasts of the East Asian-Australasian Flyway (Tomkovich 1990) south to Australia and, probably, New Zealand (Lindström *et al.* 1999, Anon. 2000, Tomkovich & Riegen 2000).

Acknowledgements

Eugeny E. Syroechkovski, Jr. and Yaroslav Red'kin collected a series of birds on New Siberian islands during the Swedish-Russian Tundra Ecology-Expedition-94 and made them available for this study. I am also thankful to Dr. V. M. Loskot and E. A. Shapoval for their permit and help in study of specimens in Zoological Institute in St. Petersburg, as well as to Eugeny A. Koblik for valuable comments on the early draft. I am grateful to Dr. Robert Prŷs-Jones for correcting my English and Dr. Nick Davidson for improvements to the manuscript.

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A reappraisal of the type specimens of *Brachypodius immaculatus* Sharpe, 1876 (Pycnonotidae)

by Michael Walters & Edward C. Dickinson

Received 27 September 2000

A thorough review of the scientific names given to Asian birds, and an attempt to locate relevant type specimens, is being conducted to provide a firm basis for future taxonomic studies. This review is all destined for a new series entitled "Systematic Notes on Asian Birds", published in discrete issues of Zoologische Verhandelingen, Leiden. The first examples of papers on the type material of Asian taxa have appeared (Dekker *et al*, 2000; Dickinson *et al.* 2000). An example of the relevance of such detailed work is the reminder (Decker *et al.* 2000), that the name *caudacuta* from the combination *Calyptomina* [sic] *caudacuta* Swainson, 1838, must be used for the Malay peninsula race of *Calyptomena viridis* Raffles, 1822, the Green Broadbill, this name having many years priority over *Calyptomena viridis continentis* Robinson & Kloss, 1923.

In preparation for a forthcoming paper on the family Pycnonotidae one of us noted that Sharpe (1876) appeared to list only one specimen of his new *Brachypodius immaculatus,* the Black-headed Bulbul, which he separated from "true *melanocephalus* from Malacca".

Brachypodius immaculatus Sharpe, 1876, is a junior synonym of *Pycnonotus atriceps atriceps* (Temminck, 1822) of which *Lanius melanocephalus* Gmelin, 1788, is a senior synonym but preoccupied (Deignan 1960). Sharpe's name had been too long in synonymy for it to be listed in Deignan's synonymy, which was required to complement not duplicate that given in the *Catalogue of Birds in the British Museum*.

The one specimen Sharpe seems to discuss had been collected by Everett from Sibu in Sarawak. By contrast Sharpe (1881), who had by now submerged his *immaculatus* in *Micropus melanocephalus*, indicated that an adult Sumatran bird collected by Wallace was the type of *immaculatus,* despite listing Everett's specimen as one deserving the same name.

The purpose of this note is to record what we believe to have been the intent and process followed by Sharpe. In so doing we clarify the status of the specimens concerned.

It is apparent from the original description that the Sibu bird (now BMNH 1875.8.16.19) was considered an immature and that Sharpe (1876) described the adult. It is also clear that the adult or adults described were from Sumatra, although the Sarawak bird was also assigned to this new form. No adult type was specified and indeed no adult specimens were listed, but the description is suffixed by the words "(Sumatra, *Wallace*)", so it can only be presumed that Sharpe (1876) reviewed Wallace's Sumatran specimens then in the British Museum. Of the specimens listed by Sharpe

(1881, p. 66) only "*k.*" and "*l.*" qualify under this heading. No holotype was made clear. Nothing on the labels suggests that one was selected but never published. By not specifying a holotype Sharpe (1876) effectively made these two his syntypes.

Sharpe (1881) listed specimen "*l.*" as "type of *Brachypodius immaculatus*". Under the term of Art. 74.5 of the International Code of Zoological Nomenclature (ICZN 1999), this must be taken to be the designation of a lectotype and specimen "*l.*" (BMNH1873.5.12.2463), previously segregated and listed by Warren & Harrison (1971) was the subject of that designation. Specimen "*k.*" (BMNH 1873.5.12.12) becomes a paralectotype. The specimen from Sibu, Sarawak, does not have type status, *contra* Warren & Harrison (1971), as by definition Sharpe excluded it by providing a deliberate description only of the adult.

Acknowledgement

We should like to thank Robert Prŷs-Jones for reading a draft of this paper and offering comments.

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The correct scientific name of the Palawan Peacock-pheasant is *Polyplectron napoleonis* Lesson, 1831

by Edward C. Dickinson

Received 20 December 2000

During foundation work for a planned handbook of the birds of Asia it became clear that the scientific name of the Palawan Peacock-pheasant needed re-examination. Lesson (1831a) named this peacock-pheasant *Polyplectrum Napoleonis* on the basis of a specimen in the hands of Prince Victor Massena, Duc de Rivoli, who had it painted by Huet (Lesson 1831a). Massena (c. 1795-1863), a descendant of one of Napoleon Bonaparte's marshals, was also 3rd Prince d'Essling and his collection, now at the Academy of Natural Sciences, Philadelphia (Stone 1899), is sometimes connected with each of the names Massena, Rivoli and Essling. Lesson (1831a, p. 487) suggested that the bird was from "Inde" but provided no description. Two months later Lesson (1831b, p. 650) described the bird, although its true origin was unknown. The specific name of this peacock-pheasant has subsequently undergone several changes and my aim is to demonstrate that *napoleonis* remains correct. The same specimen, now reported it to be in the collection of the Prince d'Essling, was depicted, again by Huet, for pl. 540 in Temminck & Laugier (1820-39). Temminck named it *Polyplectron emphanum*.

The British Museum acquired a specimen from Verreaux Frères some time before 1863 but again the true origin was unclear. Sclater (1863), under the emended name *Polyplectron emphanes*, suggested, doubtfully, Borneo and Gray (1867) the Moluccas. In January 1878, Alfred Everett collected specimens in Palawan that seemed to show that this was its real source (Tweeddale 1878). For a few years this was generally accepted and fresh specimens were taken in Palawan in 1887 by Whitehead (1890) and in 1888 by the Platens (Blasius 1888a). The Platens' specimens in Braunschweig were eventually re-examined and described by Blasius (1891a, b) as *Polyplectron Nehrkornae*, who claimed that Palawan birds differed from *napoleonis*. The distinction, between the males, was in the character and extent of the white superciliary stripe. In *nehrkornae* the stripe was narrow, associated with a triangular white cheek patch and white ear-coverts, whereas in *napoleonis* the white superciliaries were wide and met on the nape (Ogilvie-Grant 1893).

Ogilvie-Grant (1893) therefore listed both "species", attributing Everett's Palawan material to *nehrkornae*, not to *napoleonis*. The only material remaining assigned to *napoleonis* was thus the type, in Philadelphia since 1846, and the British Museum specimen, neither with a proven locality.

Further specimens were obtained in Palawan by the Menage Expedition in 1887-88 and Bourns & Worcester (1894) affirmed that the white facial markings differed between individuals. The name *napoleonis* was therefore reinstated by Ogilvie-Grant (1897) and used by McGregor (1909) and Beebe (1922).

This name was challenged by Lowe (1925), who considered Lesson's name a *nomen nudum* on p. 487 in April, 1831, with a description in the addenda and corrigenda on p. 650 in June 1831 (Lowe 1925). Temminck's name *emphanum* seemed to date from May 1831 and must, he considered, be accorded priority. This view was followed by Peters (1934) and Delacour (1951) and universally since then. Here I propose that Lowe's case must fall in the face of fresh evidence.

The correct date of *Polyplectron emphanum* Temminck

The book in which the name *emphanum* appeared, *Nouveau Receuil de Planches Coloriées* (Temminck & Laugier 1820-1839), comprised 102 livraisons. The last contained the index, the first 101 contained 600 plates. These had been promised at the rate of 6 per livraison. The difficulties of dating the parts was recounted by Crotch (1869) and Sherborn (1898), but the inconsistency of needing 101 parts to issue 600 plates only attracted attention later (Zimmer 1926).

Zimmer also suggested that the methods available for dating individual plates and their texts were not wholly reliable. First, there was sometimes uncertainty in which livraison a plate might appear, and secondly the livraison numbers at the foot of the text pages were sometimes not appropriate in the sense of chronological sequence. Some texts contained references to publications that occurred long afterward, indicating that these pages were later additions to their stated livraisons. Temminck, it seems, was already trying to order his material for eventual binding in systematic order.

Dickinson (2001) resolved why some livraisons had less than six plates, identified the contents of each livraison, and largely corroborated the dating. Enough discrepancies were investigated to show that Temminck did put livraison numbers on text pages that have led later authors to date names without sufficient care and attention, as claimed by Zimmer (1926) and exemplified by this peacock-pheasant.

The name *emphanum* appears in the text that should have been expected to accompany Plate 540 in Temminck & Laugier (1820-1839). At issue is when this plate appeared and also when the text did so. Ogilvie-Grant (1893) cited it as "Pl. Col. v, pl. 18 [No. 540]". This refers to volume 5, which is in accordance with the binding plan or index that Temminck provided in 1839, but pl. 18 is a lapsus for Livr. 88. However, although most texts carried a livraison number at their foot, the place of the number in this case is improbable; these numbers were anyway sometimes wrong, accidentally in some cases but deliberately so if it suited the binding plan.

There were two editions with different page sizes. Where no substitutions took place accounts of each illustrated species seem to begin a fresh page, with the livraison number footnoted, and the texts have a blank space at the end if they are not long enough to fill the page. A comparison of the relevant text in the two editions shows a different use of page space in the crowded style suggestive of text issued in the context of reissue after page suppression (Table 1).

Comparison of leaf number and page number (Table 1) shows that discrete pages were used in the large format edition for each of the logical parts, *except* for the text for *Polyplectron chalcurum*, which is crammed into the back of the final page. In fact the plate for *Polyplectron chalcurum* was published in livraison 88 (14 May 1831, date *fide* Zimmer 1926), as no doubt was its original page of text, since suppressed. This, I believe, was the only part of these texts that did appear then. On the evidence of the large format edition alone it is possible that the introductory pages (leaf one) came out then, but in the small format edition the introduction continues on leaf two. This introduction mentions plates 539 and 540 (livraison 91, 20 December 1832, date *fide* Zimmer 1926) and the small format edition uses the rest of leaf two for text to plate 539, which would have appeared with that plate. Because *Polyplectron chalcurum* was the first subject to be depicted in livraison 88 it would not have been without text and that text would have begun at the top of its own page. Taken together, the evidence of the use of space for the introductory pages and the 18 month period between livraisons 88 and 91, show that the introduction appeared with the text for plate 539 as part of livraison 91.

TABLE 1

A comparison of the text pages said to be part of Livraison 88 to show differences in the use of page space and the addition of the text for plate 519 out of sequence at the end.

Leaf No.	Page No.	Content in large format edition	Content in small format edition
1	1	Introduction to the genus (introduction mentions plate Nos. 519, 539 and 540)	Introduction to the genus
	2	Introduction to the genus	Introduction to the genus
2	3	*Polyplectron chinquis* (pl. 539)	Introduction to the genus (top 6 lines); *Polyplectron chinquis* (rest of page)
	4	*Polyplectron chinquis*	*Polyplectron chinquis*
3	5	*Argus giganteus* (not illustrated) begins a new page	*Polyplectron chinquis* (but page not fully used)
	6	*Argus giganteus*	*Argus giganteus*
4	7	*Polyplectron emphanum* (pl. 540); begins a new page	*Argus giganteus*
	8	*Polyplectron emphanum* (top 6 lines); *Polyplectron chalcurum* (rest of page) (pl. 519)	*Argus giganteus* (top half page); *Polyplectron emphanum* (rest of page)
5	9		*Polyplectron emphanum*
	10		*Polyplectron chalcurum*

The two texts for 519 and 540 use the front and back of a single leaf in the large edition, and appear back-to-back on the second of the two leaves affected in the small edition. It has previously been argued that, because they mention livraison 88, these pages appeared in May 1831, 18 months ahead of plate 540; but in neither edition does the text for plate 519 appear first and the way the page-and-a-half of text for plate 540 is placed shows that binding cannot explain this. It is the date of the text that is important: the plates bear French vernacular names, while the scientific names are to be found in the associated text and date from that.

The evidence shows that the inclusion of the text for *Polyplectron chalcurum* (plate 519), after the text of *Polyplectron emphanum* (pl. 540), was an afterthought. Temminck's concern was to have these texts together when they were eventually bound. The evidence of the rather cramped pages, a clue to a case of substitution, is that there were costs to be saved and the use of one leaf less in the large edition may imply that the small appeared first and that greater savings were found for the larger edition.

Plate 519 would, from its number, be expected to appear in Livraison 88. By contrast plate 540 should be expected in livraison 91. Temminck clearly issued fresh text, and suppressed his earlier text, and this implied the cancellation of the original text for plate 519 alone.

My study of every plate in the book and usually the related text showed that Temminck did not publish *any* plates early. Furthermore, Temminck's handwritten list of the plates issued in each livraison, held in Leiden, shows that Plates 539 and 540 were issued as part of livraison 91, and this dates both plates from December 1832, not from May 1831.

When discussed by Tweeddale (1878) the dating of Livraison 88, which was taken from Crotch (1869), was no doubt presumed to relate to text and plate. Lowe (1925) was apparently unaware of the risks of substitution, to be mentioned by Zimmer (1926), and did not realise the significance of the sequence of texts in these pages.

Dickinson (2001) found that Temminck issued a number of replacement pages, and sometimes these had livraison numbers on them that did not tally with their date of issue. In this and other contexts his replacements have additional text that was not on the original page. Thus the extant pages with the texts for plates 519 and 540 back-to-back are substitute pages issued with Livraison 91, and the text for each plate should accordingly be dated May 1831 and December 1832.

The mention of livraison 88 at the foot of the first leaf reflects where Temminck wanted all these pages bound, and what was presumably on his text for plate 519; but it is accurate only in that plate 519, and its original text, did appear in livraison 88. The page layouts in both formats (Table 1) show that the reissue comprised all four (large format) or five (small format) leaves.

The separate parts of Article 21 of the International Code Zoological Nomenclature (ICZN 1999) do not precisely address this case, but in combination they confirm that at least for plate 540 it would be proper to date it from the date of livraison 91.

Before listing the correct citations in chronological sequence of these names it is necessary to refer again to Blasius's name.

Polyplectron nehrkornae Blasius and its correct citation

The name *Polyplectron nehrkornae* Blasius, 1891, is cited from *Mitt. orn. Ver. Wien*, p. 1 (Ogilvie-Grant 1893). This journal was also known as *Die Schwalbe*. Reference to that however shows that Blasius in fact named it at a meeting of the Braunschweig Verein für Naturwissenschaft (Nat. Hist. Soc.) in December 1890 and that a report of that meeting appeared on 3 January 1891, in the *Braunschweigischen Anzeigen* (Blasius 1891a). The three syntypes are extant, one in Braunschweig and two in Berlin (Hinkelmann & Heinze 1990).

Blasius had used this newspaper before to name Philippine, and other, birds and insisted that his names antedated those of Sharpe (Blasius 1888b). Rand (1955) eventually stated that the names in the *Braunschweigischen Anzeigen* must be accepted. Despite Rand's statement that Blasius (1888b) had "resolved the confusion", his names were not readily accepted in the first half of last century, since newspapers were not felt to be proper media for new scientific names. Since Rand (1955) they have been fully accepted.

In firmly supporting all Blasius's names, Rand (1955) did not mention *Polyplectron nehrkornae*, presumably because it was by now in synonymy. Nonetheless the correct citation for this is *Polyplectron Nehrkornae* Blasius, 1891, *Braunschweigischen Anzeigen*, 2, p. 15.

Conclusion

Correctly arranged in chronological order these three names are therefore:

Polyplectrum napoleonis Lesson (1831, June), *Traité Orn.*, part 8, p. 650.

Polyplectron emphanum Temminck (1832, Dec), in Temminck & Laugier (1820-1839), Pl. Col., Livr. 91, pl. 540.

Polyplectron Nehrkornae Blasius, 1891, *Braunschweigischen Anzeigen*, 2, p. 15.

Lesson on page 650 used only the French vernacular name, but he referred to page 437, where the scientific name *napoleonis* had appeared in April 1831 as a *nomen nudum*. This has previously been considered to meet the appropriate requirements for acceptance (Ogilvie-Grant 1893, 1897) and under present rules (ICZN 1999) still does.

To sustain the resurrection of this prior name it is necessary to address Art. 23.9 of the Code (ICZN 1999), since it might be argued that the name *Polyplectron emphanum* is too well established to be rejected. This Article states that two conditions must be met if priority is to be over-ridden. First, it must be shown that the senior name has not been used as a valid name after 1899, and second it must be shown that the junior name has been used "in at least 25 works, published by at least 10 authors in the immediately preceding 50 years and encompassing a span of not less than 10 years".

In this case the second condition can probably be met. Lowe's use of *emphanus* (1925) was adopted by Peters (1932), and by subsequent literature pertaining to Philippine birds (Delacour & Mayr 1946, duPont 1971, Dickinson *et al.* 1991, Inskipp *et al.* 1996, Collar *et al.* 1999, Kennedy *et al.* 2000). Delacour (1951), and more recent works on pheasants (e.g. McGowan & Garson 1995), have also used this name.

The first condition cannot be met. McGregor (1909), who explicitly agreed with Bourns & Worcester (1894) about the name *nehrkornae*, used the name *Polyplectron napoleonis* and, as stated above, that seems to have been unchallenged from 1897 until Lowe's (1925) review. During this period *napoleonis* was used by Beebe (1922). It is therefore necessary to apply the name *Polyplectron napoleonis* citing *Polyplectrum* [sic] *napoleonis* Lesson, 1831 (June), *Traité Orn.*, part 8, p. 650.

Acknowledgements

This paper derives from the broader study and thanks are due to René Dekker at the National Museum of Natural History, Leiden for agreeing that this highlight might be published separately. In the longer paper (Dickinson, 2001) will be found numerous other acknowledgements in connection with the overall report. The suggestion to publish this separately so that it might come to the attention of those engaged in pheasant breeding as well as ornithologists was made by Alain Hennache of the Parc Zoologique Clerès, France and endorsed by Richard Howard, Chairman of the World Pheasant Association.

The Temminck manuscript in Leiden was not previously known but a search was suggested by Gerlof Mees after reading a draft of the overall study. For obtaining a copy of pages from the *Braunschweigischen Anzeigen* and for helping with the translation from German thanks are due to Norbert Bahr. For advice on the validity of Lesson's name, in the context of its proposal, and for a discussion on the options available upon finding that it has priority, I am grateful to Philip Tubbs of the International Commission for Zoological Nomenclature. Early drafts of this have been read and commented upon by Norbert Bahr, Geoffrey Davison, René Dekker, Alain Hennache, Christoph Hinkelmann, Robert S. Kennedy and David Wells, to all of whom thanks are due.

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A re-evaluation of Straneck's (1993) data on the taxonomic status of *Serpophaga subcristata* and *S. munda* (Passeriformes: Tyrannidae): conspecifics or semispecies?

by Sebastian K. Herzog

Received 27 December 2000

In 1993, R. J. Straneck published a paper entitled "Aportes para la unificación de *Serpophaga subcristata* y *Serpophaga munda*, y la revalidación de *Serpophaga griseiceps* (Aves: Tyrannidae)". As the title implies, Straneck concluded, based on field and museum studies, that the first two taxa are conspecific and that a third, often misidentified and specifically distinct taxon exists, namely Grey-crowned Tyrannulet *S. griseiceps*. However, as I will discuss in this paper, the article contains several methodological flaws, and a careful re-examination of the presented data using objective, quantitative and conservative criteria (Isler *et al.* 1997, 1998, 1999) must actually reach the opposite conclusion, namely that given the current knowledge, White-crested Tyrannulet *S. subcristata* and White-bellied Tyrannulet *S. munda* are valid biological species. I have field experience with both forms, but the present paper is based solely on Straneck's (1993) account. The situation of *S. griseiceps* is less straightforward (e.g., Traylor 1982 considered the type specimens of *S. griseiceps* as juveniles of *S. munda*) and will be treated separately. Because Straneck's (1993) conclusions have already been adopted by at least three recent publications (de la Peña & Rumboll 1998, Mayer 2000, Mezquida & Marone 2000), a word of caution regarding his paper seems timely.

The genus *Serpophaga* contains five currently recognised species (Monroe & Sibley 1993, Ridgely & Tudor 1994), including *subcristata* and *munda*. Of the remaining three species, one is restricted to river islands of the Amazon and Orinoco systems and two are closely associated with water in the northern to central Andes and south-eastern South America, respectively (Ridgely & Tudor 1994). *S. subcristata* and *S. munda* are restricted to the southern half of the continent and show a basically parapatric distribution pattern, at least during the breeding season (Ridgely & Tudor 1994). Whereas *subcristata* is widely distributed in forest, woodland and scrub of south-eastern South America with its western limit in the Andean foothills, *munda* occurs in the eastern Andes from foothills up to about 3,000 m (in Cochabamba, Bolivia; J. A. Balderrama and S. K. Herzog, unpubl. data) in deciduous scrub and forest during the austral summer. In the austral winter, latitudinal and possibly altitudinal migrants are found in the lowlands (chaco) east of the Andean breeding grounds and well within the range of *S. subcristata* (Fjeldså & Krabbe 1990, Ridgely & Tudor 1994, Chesser 1997).

The notion that the two taxa may be conspecific is not new (e.g., Zimmer 1955). However, rather than presenting a review of the older accounts on the topic, I re-evaluate the new data from Argentina published by Straneck (1993). Because that paper appeared in a relatively inaccessible journal, I will briefly summarise its content and point out major shortcomings in the appropriate places.

Distribution

Field observations and specimen collections were made during eight years (actual time period not stated) in ten provinces of northern and central Argentina (south to La Pampa and Buenos Aires; mainly austral spring to summer, year-round in four provinces) and supplemented with specimen examinations in four Argentinian museums. A map with the breeding distribution is presented, showing *munda* restricted to the western and *subcristata* to the eastern half of northern and central Argentina, which largely coincides with Ridgely & Tudor (1994) (except that no specimen records are shown south of La Pampa). Populations of both taxa are stated to be partially migratory. Whereas no overlap in the breeding ranges of the two taxa is evident, Straneck reported individuals intermediate between *subcristata* and *munda* from five localities in the contact zone of their respective ranges. However, no additional information is given on whether any hybrids were collected, how they differed from typical *subcristata* or *munda* and the frequency with which hybrids were observed at the five sites, i.e., whether a narrow but defined hybrid zone exists (which would render the two forms megasubspecies of *S. subcristata*) or if gene flow between both populations occurs at only a low and local level (hybridization parapatry *sensu* Haffer 1992).

Vocalizations and playback experiments

Thirty-eight individuals of both *subcristata* and *munda* were tape-recorded and 875 of their vocalizations analysed qualitatively. Sonograms of the four most common vocalizations of each taxon (without locality data) illustrate the main result, namely that "vocal differences between both forms are minimal and attributable only to individual or regional differences." My main criticism here is that Straneck's judgements were purely qualitative and that a careful examination of possible differences in specific vocal characters, including quantitative analysis, is required before any decision regarding species limits can be made (*cf.* Isler *et al.* 1998). This point is exemplified by well-known North American superspecies of small tyrannids such as the one composed of *Empidonax traillii* and *E. alnorum*, which are considered valid species (AOU 1998) despite only subtle vocal differences between them. To avoid confusion, it should be noted that Straneck considered J. V. Remsen's (Remsen & Traylor 1989: 54) description of the song of *subcristata* to be erroneous and referable to *S. griseiceps*, the taxon Straneck intended to revalidate. New field evidence (*cf.* recordings by the author and others in Mayer 2000) appears to corroborate Straneck's point of view.

Additionally, Straneck conducted playback experiments (five each) in the breeding season to test for territorial responses, playing vocalizations of *subcristata* to *munda* and vice versa (although without specifying the detailed methodology and again without locality data). Reactions of all test birds were positive, i.e., they showed a strong behavioural response to the playback. However, positive responses to playback in nature are not as straightforward and unequivocal as they may seem. A number of antbird (Thamnophilidae) species, including sympatric species, such as *Thamnophilus* antshrikes, have been found to respond to each other's song, a behaviour possibly related to interspecific territoriality (M. Isler, pers. comm.). J. Goerck (pers. comm.) observed a similar behaviour in *Drymophila* antbirds. Because interspecific territoriality might also be operating in the case of *subcristata* and *munda*, playback experiments need to be designed (*cf.* Kroodsma 1989a) and interpreted carefully, and a positive response (as opposed to a lack of response) is of limited value for resolving taxonomic questions.

External morphology

The known and obvious differences in plumage colouration between the two taxa (Ridgely & Tudor 1994) are mentioned briefly, and morphometric data are presented for 40 individuals of *subcristata* and 12 of *munda*; whether measurements were taken from specimens or live birds is not stated. Unfortunately, no clear conclusion can be drawn from these data by the reader (and Straneck makes no attempt to do so either) since only mean values for each of the seven measurements are given, lacking standard deviations and ranges. Also, only body mass was calculated separately for males and females, but sample sizes for each sex were not given. Differences between mean values of each taxon are minimal (<0.5 mm or g) except for tail length (2.0 mm longer in *subcristata*) and wingspan (2.8 mm wider in *munda*). The shorter tail in *munda* is contradictory to both Zimmer (1955) and Bó (1969), who found male *munda* to be longer-tailed than male *subcristata*, although with slight overlap in measurement ranges. Zimmer (1955) noted that the difference in tail length between the two taxa is less pronounced in females than it is in males; therefore, Straneck's failure to present all morphometric data separated by sex may well explain his unexpected tail measurements.

What do Straneck's data really tell us?

Straneck concluded that, based on identical vocalizations and despite differences in plumage colouration, *S. subcristata* and *S. munda* must be considered conspecific. Neither the similar measurements nor the existence of hybrids are mentioned or discussed any further, although these must certainly have influenced the author's decision. Recent pioneering studies on species limits in another family of suboscine birds (Thamnophilidae) (Isler *et al.* 1997, 1998, 1999), which likewise focused on vocalizations and external morphology, have developed objective criteria for establishing species limits in that family. Because the development of these criteria was initially derived from the convincing evidence that vocalizations in the family Tyrannidae are entirely innate (Kroodsma 1984, 1985, 1989b; Kroodsma & Konishi 1991), it is logical to apply the same criteria to species-level taxonomy of tyrant flycatchers.

Isler *et al.* (1999) treat parapatric populations as valid species if they are "diagnosable by *either* morphology or vocalizations and with a lack of clinal intermediacy at the contact zone indicating that gene flow is absent or highly restricted." In contrast, adjacent populations diagnosable by either morphology or vocalizations that have a contact zone where "intermediates occur in a steep, apparently stable cline" are treated as subspecies. These criteria illustrate the importance of the degree of gene flow and the geographic distribution of hybridization for determining species limits in adjacent populations of suboscines, to which Straneck pays only minimal attention. Because his data are not explicit, taking a conservative approach one must assume that intermediate individuals occur only locally and gene flow between both taxa is indeed highly restricted. Applying the above criteria, *subcristata* and *munda* must thus be considered valid species (semispecies, i.e., taxa that replace each other geographically with only limited hybridization in the area of contact; Haffer 1992).

The need to collect additional information is particularly relevant in view of several recent publications (e.g., Bierregaard *et al.* 1997, Zimmer *et al.* 2001) documenting the existence of cryptic biological species that had been overlooked due to the lack of data from contact zones between geographically representative forms. Whereas a detailed field study quantifying the extent of hybridization between *subcristata* and *munda* together with an appropriate analysis of vocal and morphometric characteristics may prove them to be conspecific, for the time being they are better treated as separate species.

Acknowledegements

I would like to thank Sjoerd Mayer for pointing out the existence of Straneck's article and providing me with a copy; Juan Mazar Barnett for helpful discussions and additional information on the Argentinian distribution of the two taxa; and Jürgen Haffer, Mort Isler and Van Remsen for valuable comments on the manuscript.

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The validity of the genus *Veles* Bangs, 1918 (Caprimulgidae)

by Nigel Cleere

Received 27 January 2001

The Brown Nightjar *Caprimulgus binotatus* is a poorly known species endemic to the rainforests of western and central Africa (Fry *et al.* 1988, Cleere 1998, 1999). It has rarely been seen well by field ornithologists and there are few specimens in museum collections. Distinctive morphological and behavioural features suggest that its placement in the genus *Caprimulgus* requires reappraisal.

Material

I examined 13 specimens (8 males, 4 females, 1 unsexed) in the following museums : The Natural History Museum, Tring, U.K. (6); National Natuurhistorisch Museum, Leiden, Netherlands (1); Muséum National d'Histoire Naturelle, Paris, France (1), Koninkliijk Museum voor Midden-Afrika, Tervuren, Belgium (3); Carnegie Museum of Natural History, Pittsburg, U.S.A. (2).

Discussion

Described by Bonaparte (1850), a specimen at The Natural History Museum, Tring, was identified as 'a very singular species with no near ally' (Hartert 1892) and one at the Museum of Comparative Zoology, Harvard, was recognised as being different from *Caprimulgus* by Bangs (1918), who erected a new genus, *Veles*. Subsequent recognition of *Veles* varied, usually without further comment, and the last author to treat it as valid appears to have been Peters (1940).

Morphological features that differentiate *binotatus* from *Caprimulgus* are: the small, weak rictal bristles; the slightly protruding 'ridged' crown feathers above the eye; the stiff, pale feathers on either side and to the rear of the crown which form very small 'ear-tufts'; the wing tip reaching nearly to the end of the short tail; the curved, outer primaries; the stiff 'boat-shaped', vaulted or tented structure of the tail; the strong feet, and the short, fluffy under-tail coverts (Bangs 1918, Chapin 1939, Carroll & Fry 1987, Fry 1988, Fry *et al.* 1988, Dowsett-Lemaire & Dowsett 1998, Cleere 1998, 1999).

Caprimulgus nightjars lack dense crown feathers that protrude above the eye, lack 'ear-tufts', have elongated rictal bristles, and possess straight outer primaries. Curved primaries are usually found in species that use their wings to produce mechanical sounds, other than wing-clapping, during courtship display flights, e.g. *Eleothreptus*. This type of display has so far not been recorded for the Brown Nightjar. The stiff 'tented' tail feathers of the Brown Nightjar are not present in other afrotopical nightjars, and their strong feet may be an adaptation for roosting and perching above ground. Most nightjars are more terrestrial in their roosting and nesting habits, and therefore have somewhat weaker feet.

Two other critical differences between the Brown Nightjar and *Caprimulgus* species are that it probably nests on branches of trees (Carroll & Fry 1987), and it has a strange voice. Other nightjars lay their eggs on the ground, on leaf litter, bare soil, rocks or flat roofs. The strange metallic song is reminiscent of an *Epomops* bat (Dowsett-Lemaire & Dowsett 1998), and is quite unlike the churring or whistling songs of the afrotropical *Caprimulgus* species.

Recognition of the genus *Veles* for the Brown Nightjar appears to be warranted on morphological, vocal and behavioural differences, although its relationship to other nightjars remains unclear. Until its true affinities can be determined by molecular studies, I propose the systematic placement of *Veles* between *Eurostopodus* and *Nyctidromus*.

Acknowledgements

For all their assistance, I would like to thank Robert Prŷs-Jones, Michael Walters, Mark Adams and Effie Warr at the Natural History Museum, Tring, U.K.; René Dekker (Nationaal Natuurhistorisch Museum, Leiden, Netherlands); Eric Pasquet (Muséum National d'Histoire Naturelle, Paris, France); Michel Louette (Koninkliijk Museum voor Midden-Afrika, Tervuren, Belgium) and Kenneth Parkes (Carnegie Museum of Natural History, Pittsburg).

I also thank Francoise Dowsett-Lemaire for kindly sending me copies of photographs and recordings of birds they encountered in Cameroon and Claude Chappuis for supplying recordings from Ghana.

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New name for the Bolivian Blackbird

by Peter E. Lowther

Received 7 March 2001

Extensive recent work on relationships among the Icteridae, based largely on mitochondrial DNA sequencing, indicate that 5 species of brood parasitic cowbirds comprise a natural and holophyletic group that does not include the sixth "cowbird" species — the Bay-winged Cowbird, usually treated as *Molothrus badius* (Lanyon 1992, Lanyon 1994, Johnson & Lanyon 1999, Lanyon & Omland 1999, Omland *et al.* 1999, Searcy *et al.* 1999, AOU 2000). The genus *Molothrus* Swainson 1832 is then defined as encompassing only the brood parasitic cowbirds (see AOU 2000). The Bay-winged Cowbird has now been shown to be part of a South American icterid clade which has the Bolivian Blackbird *Oreopsar bolivianus* as its sister taxon (Johnson & Lanyon 1999; see also Lanyon & Omland 1999). Similarities between these two species also exist in behavioral traits and vocalizations that also support this indication of relationship (Jaramillo & Burke 1999); the latter authors even suggest "Baywing" as a common name to remove the connotations of common descent implied by the name "cowbird."

The transfer of the Bay-winged Cowbird to *Oreopsar* (as *Oreopsar badius*) suggested by Johnson & Lanyon (1999) maintains *Molothrus* as monophyletic and recognizes the phylogenetic affinity of this species to the Bolivian Blackbird. However, including the Bay-winged Cowbird and Bolivian Blackbird in the same genus creates two nomenclatural problems. First, the genus *Agelaiodes* Cassin, 1866, of which *badius* is the type species (see Friedmann 1929), has priority over *Oreopsar* Sclater, 1939. Second, when these two species are placed in the same genus an instance of secondary homonymy is created due to the existence of the race *Molothrus badius bolivianus* Hellmayr, 1917. Thus, a new specific name would be required for the Bolivian Blackbird. I suggest

***Agelaioides oreopsar*, nomen novum**

for the Bolivian Blackbird, if it and the Bay-winged Cowbird are retained in the same genus. The proposed specific name, *oreopsar*, is used as a noun in apposition and retains some element of recognition and association to *Oreopsar bolivianus* by which name this taxon has always been known in its otherwise simple taxonomic history. The choice to retain these two species in *Agelaioides* is supported by phylogenetic analyses showing low divergence in cytochrome-b: Bolivian Blackbird and Bay-winged Cowbird show 6.5% divergence (S. M. Lanyon, pers. comm.), somewhat intermediate between divergence value of 4.9% among brood parasitic cowbirds and 9.1% between Bay-winged Cowbird and brood parasitic cowbirds (Johnson & Lanyon 1999).

I thank Scott M. Lanyon, Thomas Schulenberg, Gary Graves, Carla Cicero and an anonymous reviewer for consultation, discussions and comments regarding this aspect of icterid nomenclature.

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The correct name of the Iberian Chiffchaff *Phylloscopus ibericus* Ticehurst 1937, its identification and new evidence of its winter grounds

by Lars Svensson

Received 26 April 2001

The Iberian Chiffchaff, whether regarded as a subspecies of Common Chiffchaff *Phylloscopus collybita* or a separate species, has been known as both *brehmii* (Homeyer 1871) and *ibericus* Ticehurst 1937. The current 'official' name is the former; e.g. the Records Committee of the British Ornithologists' Union lists it as Iberian Chiffchaff *Phylloscopus brehmii* (Homeyer) (B O U 2001). However, I demonstrate below that the correct name should be *P. ibericus*.

In recent years, close study of the Iberian Chiffchaff has revealed reasons for it to be treated as a separate species, mainly due to the efforts of Marc Salomon (Salomon

1982, 1987, 1989, 1990, 1997, Salomon *et al.* 1992, 1997), and has indicated criteria for its identification. Salomon *et al.* (1997) described a morphometric formula for separating males of Iberian and Common Chiffchaffs (nominate race). I here propose a different biometric formula to facilitate identification in the hand; I believe this to be more effective and easier to use.

Vocalizations are not treated here; good accounts appear in Glutz von Blotzheim & Bauer (1991), Urban *et al.* (1997), Clement & Helbig (1998), and Svensson *et al.* (1999).

The wintering grounds of the Iberian Chiffchaff have either been largely unknown (Ticehurst 1938, Williamson 1962, Cramp 1992, Baker 1997) or variously given as 'apparently mainly within Iberia at low altitudes' (BOU 2001), 'resident' and 'some move south in winter' (Parmenter 1991). Other authors have suggested that it winters partly or entirely in Africa, though the extent of this was little known: 'the real winter grounds appear to be Maghreb, possibly even further south' (Glutz von Blotzheim & Bauer 1991), 'several indirect lines of evidence suggest that [*P. ibericus*] migrates further than nominate *collybita*' (Salomon *et al.* 1997), 'there are winter records from as far south as Mali and Burkina Faso' (Clement 1995). I give some evidence and reasons for believing that the winter grounds are to be found predominantly in tropical Africa.

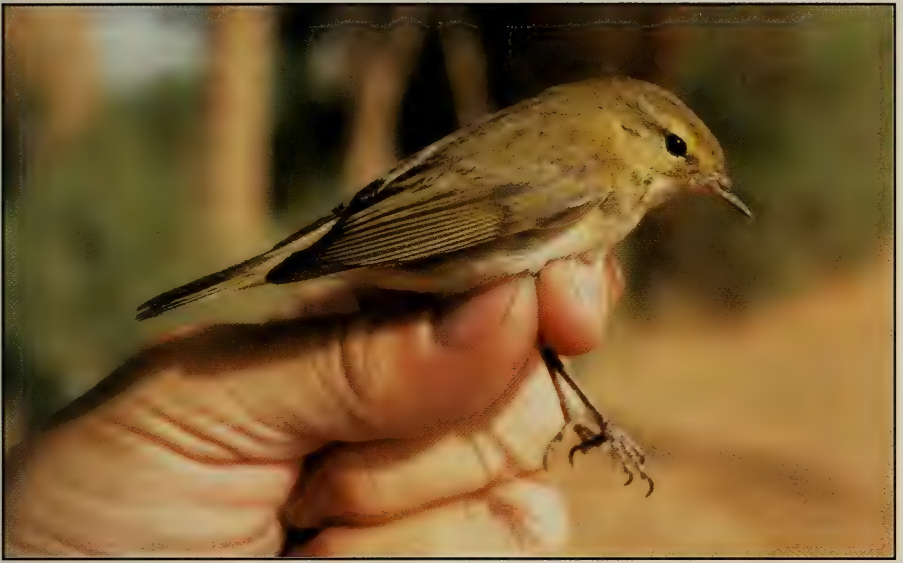
Throughout this paper, mention of *collybita* or Common Chiffchaff should be taken to refer to nominate *P. c. collybita*, unless otherwise indicated.

The scientific name

E. F. von Homeyer's original description (1871) of the Iberian Chiffchaff, under the name '*Phyllopneuste Brehmii*', is insufficient and in several vital aspects erroneous, as pointed out by C. B. Ticehurst (1937). von Homeyer described the Iberian Chiffchaff as being considerably smaller than the Common Chiffchaff, with wing ('ulna') only '51–52' (Iberian is actually on average slightly larger); with 'an appearance to have a longer tail' (it has a slightly shorter tail); substantially shorter tarsi (claimed by von Homeyer to be about 20% shorter, whereas, in reality, the two taxa have roughly same length tarsi); 'weaker bill, although of same length' (it has a very slightly stronger and longer bill); and to have 'considerably darker olive-brown upperparts' (classical Iberian are green above and lack brown tinges) and similar colours below as Common Chiffchaff (Iberian is on average cleaner lemon-yellow and white on the underparts). The second outermost primary was described to be short, 'only slightly longer than the secondaries' (it is on average slightly longer than on Common Chiffchaff, substantially longer than the secondaries).

These shortcomings relate to almost every character described. As noted by Ticehurst (1937) this, together with the lack of information about its call or song, makes it impossible to accept the description as anything other than a Common Chiffchaff, even allowing for the brief and incomplete descriptions of the time.

It is clear that von Homeyer was not aware of sexual size dimorphism in Chiffchaffs. The type description most certainly described a (small) female Common Chiffchaff.



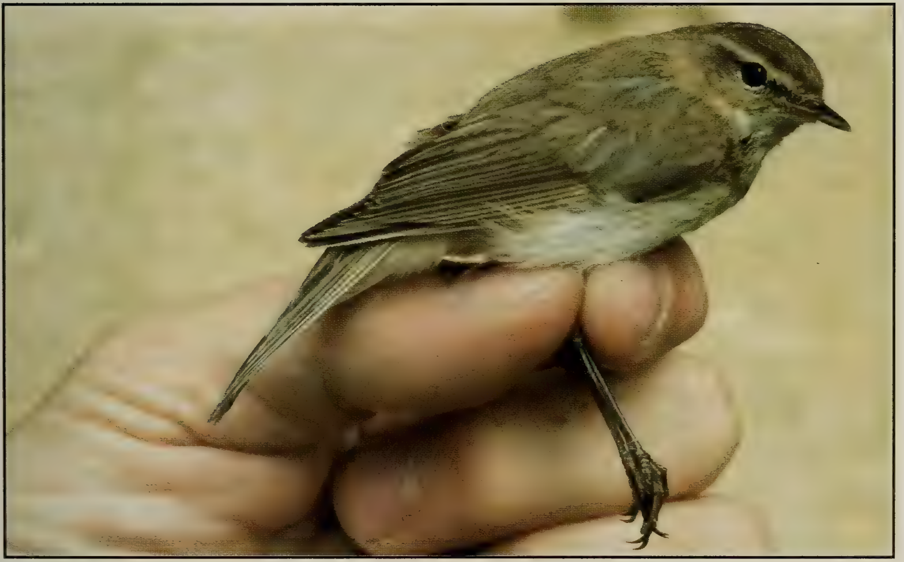


Plate 1. a. Iberian Chiffchaff *Phylloscopus ibericus*, 7 April 2001, Der Kaoua Oasis, SE Morocco. Note green upperparts without brown tinge, yellow hue on sides of head, and vivid lemon supercilium above and in front of eye. The sixth outermost primary is clearly emarginated, separating it from Willow Warbler *P. trochilus*. (Lars Svensson). b. Common Chiffchaff *P. c. collybita*, 19 May 1999, near Auch, Gers, SW France. Note brown tinge on greyish-green upperparts, rather dusky sides of head, and lack of strong lemon on supercilium. (Lars Svensson).

von Homeyer did not explicitly state that the description was based on just one type specimen, but it is the only possible way to understand the brief original description. He mentioned that he had received several interesting skins from Portugal through the dealer Mr W. Schlüter in Halle, these having been collected by Dr Rey, and that among these was 'a small leaf-warbler at a quick glance resembling the Common Chiffchaff in some aspects, only being hardly bigger than a Goldcrest'. Although three specimens have later been referred to as types, only one collected prior to the description is known.

The *brehmii* type specimen

E. F. von Homeyer's collection of skins, numbering nearly 7,000, was bequeathed to the Staatliches Naturhistorisches Museum in Braunschweig (SNMB), Germany, including the type of '*Phyllopneuste Brehmii*'. In July 1999, I visited Braunschweig and examined the type specimen, together with other relevant skins. Both plumage and measurements are involved in the separation of Iberian and Common Chiffchaffs and, due to the close resemblance between the two, as many characters as possible must be used in combination in order to obtain a reliable identification.

The type (Braunschweig no. 1287) is without doubt a female Common Chiffchaff *P. c. collybita*. The upperparts have a strong brown wash to the dull green on crown and mantle, and the underparts are both quite dusky (instead of largely whitish in the centre) and slightly tinged brown, with buff on the sides of the head, breast, flanks, and even slightly on the throat. These features exclude the possibility of it being an Iberian Chiffchaff.

The measurements (mm) of the *brehmii* type are: wing 54, tail 42, tarsus 18.6, bill (to skull) 10.8, bill depth (at feathering) 2.2. Wing formula: 1st (outermost) primary (P1) in relation to primary coverts (p.c.) +6.5, P2 in relation to wingtip (WT) –6.5 (and falling between P8/9, near P8), P3 –0.5, P4 0, P5 –0.5, P6 –1, P7 –4, P8 –6, P10 –8.5, 1st (outermost) secondary (S1) –10. P1 < P2 21.

The label, with black ink handwriting by von Homeyer (validated by Manfred Scholz, SNMB) reads: '*Sylvia ~~trochilus~~ Brehmii* ad, Portugal, April 69. Dr. Rey.', and in pencil 'Hartert vind. 1869. typ.'. On the reverse side is printed: 'Wilhelm Schlüter. Naturalienhandlung in Halle a/S. Europa.' In ink handwriting the following is added '1287' and '~~2233~~' and '1.'. In pencil is written 'No 28'.

Since both the description and the type of von Homeyer refer to *P. c. collybita*, the name *Phylloscopus brehmii* (Homeyer 1871) is a synonym of *P. c. collybita*, and the correct name for the Iberian Chiffchaff is *Phylloscopus ibericus* Ticehurst 1937.

It remains here to comment on the examination of the *brehmii* type by G. Niethammer (1963), whose views have subsequently been followed by most authorities and authors. Niethammer did not put forward any convincing reasons for rejecting Ticehurst's new name, and for upholding von Homeyer's. He claimed that the type with its 'saturated upperparts and the vividly yellow on underparts (wing-bend, thigh, undertail-coverts)' was 'typical for the Chiffchaffs of northern Spain' (presumably in error for Portugal or 'Northern Iberia'). Ticehurst's opinion that the *brehmii* type is a migrant *collybita* was based on the original description and an examination of the type by Dr Steinbacher in Braunschweig at the time. Both were disregarded by Niethammer without any further arguments.

The *brehmii* type is far too brown and buff to be *ibericus*. Vivid yellow hues on the underparts can be found on both taxa. As will be shown below, the biometrics of the type convincingly show it to be *collybita*. We now know that both *ibericus* and *collybita* breed in northern Iberia, and probably did so in the late 19th century, too. Referring to the area of collection is therefore in itself no proof. The date ('April') does not exclude migrants, and the date as given on the label has been questioned––not without reason—based on the rather fresh tips to the primaries (Ticehurst, *loc. cit.*), which are more typical of birds from late autumn or winter.

Vaurie (1954) questioned if this specimen was really the type at all, although it is not clear whether he examined it himself. However, there is no reason to doubt that this specimen is the type. It is still kept in von Homeyer's collection, it is the only one from the type locality Portugal, it has the correct provenance, and it was collected two years prior to the description.

Other specimens referred to as *brehmii* types, or of direct relevance

Two more specimens in the Braunschweig collection emanating from von Homeyer were later designated by E. Hartert as 'duplicate types' (apparently *sensu* syntype) for *brehmii*, and have sometimes been referred to as 'types' in the literature. However, I have not been able to establish why Hartert did this, since he did not accept *brehmii* as a valid taxon (Hartert 1910).

SNMB, no. 6484, Morocco (?), 3 May 1884

The locality for this bird is Morocco according to Ticehurst (1937), though Niethammer (*loc. cit.*) says 'apparently Portugal'. A label with von Homeyer's handwriting in black ink reads: '*P. Brehmii* 6484', and in pencil 'Hartert vind. typ.'. On the reverse side is written in ink 'Mor an works, 3/5/84, female'. In pencil is written '1884'. The specimen is in all respects a typical female *collybita*, with plumage very similar to von Homeyer's *brehmii* type. Measurements: wing 54, tail 44, tarsus 18.8, bill (to skull) 11.0, bill depth (at feathering) 2.1. Wing formula: P1 in relation to p.c. +6, P2 in relation to WT –6 (and falling between P7/8), P3 to P5 0, P6 –1, P7 –5, P8 –7, P10 –9.5, S1 –10.5. P1 < P2 20.

Even if this bird had been an Iberian Chiffchaff, which it is not, it could not serve as a type since it was collected 13 years after von Homeyer published his original description of the taxon, and since the original type is still preserved.

SNMB, no. 2971, Algiers, no date

A label with von Homeyer's handwriting in black ink reads: '*Phyllopneuste ~~rufa~~ Brehmii* Homeyer, Loche, Algier', and in pencil by Hartert 'Hartert vind. typ.'. Finally in pencil by someone else 'Duplic.'. On the reverse side is printed 'Zoologisches Comptoir. Nr.'

and 'Gustav Schneider in Basel', with 'v. Homeyer' stamped in blue ink, '*Phyllopneuste rufa* L, Alg' written in pencil, and no '2971' (or possibly '297i') in ink.

This bird is an Iberian Chiffchaff, apparently collected by a Mr. Loche in the Algerian capital. Most likely it is a worn spring or summer female (although no date or sex are given). It has green upperparts without a brown cast on the crown and mantle (or with the slightest tinge only), and it is dusky oily-grey or off-white below, and with yellow streaks lacking any buff or brown-grey tinge on the throat, breast or flanks. The undertail-coverts are very pale yellow and accordingly there is only a very slight contrast with the whitish centre of the belly (the bird is not entirely typical in this respect, although such variation does occur within *ibericus*). Tarsi are rather pale grey-brown, and the cutting edges of the bill are also pale brown. Measurements: wing 57.5, tail 43, tarsus 19.4, bill (to skull) 12.3, bill depth (at feathering) 2.6. Wing formula: P1 in relation to p.c. +5, P2 in relation to WT –6.5 (and falling between P6/7, near P7), P3 and P4 0, P5 –2, P6 –4.5, P7 –7, P8 –8.5, P10 –10.5, S1 –12. P1 < P2 22.5.

Since von Homeyer specifically mentions that the type is from Portugal, this undated Algerian bird cannot be the type, although it is the correct taxon.

This bird was identified as a Willow Warbler *P. trochilus* by both Steinbacher and, reputedly, Hartert (Ticehurst 1937, although the labels do not indicate this in the case of Hartert). I have more than once been struck by the superficial similarity between Willow Warbler and Iberian Chiffchaff, both in the field and in the hand. However, this particular bird is too small for Willow Warbler (in which a wing of less than 59 mm would be exceedingly rare), it has a distinct (although not deep) emargination on P6 on left wing (P6 of right wing is broken at the base), and the flight-feathers are rather dull brown-grey and worn, not darker and glossier grey with pale tips as usually found on Willow Warblers in most seasons, due to the two complete moults each year in this species. Although I have found a very few Willow Warblers with a slight hint of an emargination near the tip of P6, this bird has a more obvious emargination. Further, Willow Warblers have a longer primary projection, with S1 usually 16–19 mm shorter than wingtip (only 12 mm on this bird), P1<P2 is 26–34.5 (only 22.5 on this bird). P2 can fall between P6/7 in Willow Warbler, but hardly near P7, as on this bird.

BM(NH), no. 1886.7.8.660, El Busseh (Palestine) 7 Dec 1863
I found this specimen at the Natural History Museum, Tring, in a tray with Chiffchaffs unassigned to subspecies or region. It carried three labels, one of which read: '*Phyllopneuste Brehmii* of E. von Homeyer described in Cab. Jour. at the meeting held at Görlitz May 1870.', and on the reverse side: 'Phyl: Tristrami n.s. Mr Brooks'. The second read: 'Sylvia rufa El Busseh 7.12.63. No. Coll. by H. B. Tristram', and on the reverse side in handwriting: 'wing 2 1/8, 2=8, tail 1 7/8'. The third read: '7-12-63', 'Brit.Mus.Reg. 86.7.8.660' and '*Phylloscopus rufus* (Bechst.) Loc. El Busseh, H. B. Tristram' and on the reverse side in black ink: 'Type of *P. tristrami* Brooks fide Dresser P. Z. S. 1872, p. 25.' and 'M 112'. The specimen, which is *collybita*, was exhibited by Dresser (1872) at a meeting in the Zoological Society of London as an example of von Homeyer's Iberian Chiffchaff. It had been found many years previously

by Brooks among warblers sent to him by Rev. Canon Tristram, and Brooks regarded it as a new and undescribed species for which he anticipated the name *Phyllopneuste tristrami*. However, he never published it, and when von Homeyer's *brehmii* Chiffchaff came in print, it was concluded that these two were synonyms, and Brooks never went through with his description. The bird is not sexed but is undoubtedly a female. Measurements: wing 54.5, tail 45, tarsus 18.5, bill (to skull) 11.3, bill depth (at feathering) 2.0. Wing formula: P1 in relation to p.c. +6.5, P2 in relation to WT –6.5 (and falling = P9), P3 –1, P4 and P5 0, P6 –0.5, P7 –3, P8 –5, P10 –8, S1 –10. P1 < P2 22.

The *ibericus* type specimen

For completeness I give here a brief description of Ticehurst's type for Iberian Chiffchaff (*ibericus*) at the Natural History Museum, Tring:

BM(NH) 1934.1.1.5045, male, near Coimbra, Portugal, 23 May 1920.
Decidedly green above, lacking any element of brown. Distinctly streaked yellow below on whitish ground. No buff or grey-brown on breast. Nearly pure white on centre of belly, fairly strong yellow tinge on undertail-coverts. Worn tips to primaries. Measurements: wing 60, tail 46, tarsus 19.7, bill (to skull) 12.2, bill depth (at feathering) 2.7. Wing formula: P1 in relation to p.c. +6, P2 in relation to WT –6.5 (and falling between P6/7), P3 and P4 0, P5 –0.5, P6 –4, P7 –7, P8 –9, P10 –11.5, S1 –12. P1 < P2 23.

Biometry and identification

Salomon *et al.* (1997) discussed the morphometric differentiation of males of Iberian and Common Chiffchaffs. They trapped 25 *ibericus*, 25 *collybita* and 9 'mixed-singers' (presumed hybrids) and analysed a number of variables to derive a discriminant function for the identification of the birds. This function gave a diagnosis error of only 5% (in Salomon 1997, the margin of error is given as 7%), although hybrids would, according to the authors, be difficult to separate from Common Chiffchaff. Hybrids are estimated to constitute 11% of the population in northern Spain and in the extreme southwest corner of France (Helbig *et al.* 1996).

The discriminant function reads: (0.283 x wing length) – (0.036 x P10) + (0.269 x wing pointedness index) + (0.31 x tarsus) = 26.4. Values above 26.4 would indicate Iberian Chiffchaff males, values below 26.4 Common Chiffchaff males. The wing pointedness index was derived by dividing the distance between tips of P3 and P10 by wing length x 100. Elsewhere in the formula P10 was measured as the distance from the tip of this feather *to the wingbend* (and not, as is more commonly done, expressed as the difference between the tip of this feather and the wingtip, Salomon *in litt.*). Thus, although P10 appears twice in the formula, it is measured differently in these two functions.

I tested this formula on samples of 30 male Iberian Chiffchaffs and 76 male Common Chiffchaffs. These consist mainly of specimens examined in Tring, New York, Paris, St. Petersburg, Stockholm and Braunschweig (Appendix 1) but also include a few live birds from W Pyrenees and SW France. Live birds were generally identified by song before capture, and the identification was later confirmed by analysis of mitochondrial DNA (cytochrome b) from feather samples. For several museum specimens of *ibericus*, the labels contain information about the peculiar song, providing a confirmation of the identification. I have also carefully examined the colouration and biometry of the two taxa from single-species breeding sites and from this determined what I believe to be the most reliable ways of identifying birds in the hand.

Male Iberian Chiffchaffs in my material had a discriminant function range of 24.88–27.60 (*mean* 26.3) and the male Common Chiffchaffs 23.62–26.79 (*mean* 25.5), and with as many as 86% falling in the overlap range 24.88–26.79. Note that the mean value for *ibericus* in my sample falls *below* the discriminant value as given by Salomon *et al.* (1997).

The large difference between the results of Salomon *et al.* (1997) and of my own calculations is difficult to explain. My sample may have been biased by the inclusion of a few wrongly sexed females, whereas Salomon *et al.* used only live singing males, which were tape-lured and trapped. However, the proportion of wrongly sexed skins in museum collections is thought to be rarely higher than 5–15%, this based on the views of taxidermists and my own experience from 35 years with research in museum collections. Also, in this case several of the *ibericus* labels included remarks about the 'peculiar song' or of 'testes large', etc. It is thus fair to assume that wrongly sexed specimens in my material make up less than 5%. And even if a few females appeared in my material, it could hardly explain the markedly different results.

Another possible explanation is that my material includes mixed-singers (hybrids) and that these confuse the results. However, if no more than 11% of the Iberian Chiffchaffs in the limited area of overlap are such birds, my material of Iberian Chiffchaffs assembled from the entire range (cf. Appendix 1), and not just from the zone of contact, should have no more than one or two such birds. Hence, this does not seem likely either.

A third possible reason for such a substantial difference in results could be differing measuring methods, or the fact that a majority of the birds in my sample were skins. Since I have a long experience of measuring both live birds and skins, and since many ringers and taxonomists apply and refer to measuring techniques which I have laid out (Svensson 1992), my results should be fairly accurate, or at least possible to duplicate by others. The wing length of skins are known to shrink by about 1–3% when the skins dry. Well prepared skins of small warblers produce very nearly the same or only slightly smaller measurements than live birds. A loss of 0.5 or 1 mm in wing length would not affect the above calculations at a level which could explain the different results.

An alternative formula

The discriminant formula by Salomon *et al.* (1997) did not work well on my material.

With ringers and field workers in mind, I have derived an alternative discriminant formula which would require a minimum of training in mathematics and not even require the use of a calculator. The formula was calculated by adding seven values which tend to be larger in Iberian Chiffchaff and subtracting two which seem to be smaller on average compared with Common Chiffchaff to give a *multiple character value* (MCV).

To arrive at MCV, **add** wing length, bill length, distance P1–P2, distance wingtip (WT)–P6, distance WT–P7, distance WT–P10, distance WT–S1, and **subtract** tail length and distance P1–tips of primary coverts (p.c.). As a brief formula, this works out as: $\mathrm{MCV} = \mathrm{W} + \mathrm{B} + (\mathrm{P1}<\mathrm{P2}) + (\mathrm{P6}<\mathrm{WT}) + (\mathrm{P7}<\mathrm{WT}) + (\mathrm{P10}<\mathrm{WT}) + (\mathrm{S1}<\mathrm{WT}) - \mathrm{T} - (\mathrm{P1}>\mathrm{p.c.})$. Wing length is measured according to 'method 3' (Svensson 1992), and the bill is measured to the skull.

I deliberately avoided the use of tarsus length as a variable (*contra* Salomon *et al.* 1997) since I found this to be nearly the same in *ibericus* and *collybita* across its range (see Table 1 and 2). However, Common Chiffchaffs breeding in south-west France, i.e. closest to *ibericus*, tend to have slightly longer tarsi (*mean* 20.13 mm in ten males) than those in other parts of Europe (N France, Germany, *mean* 19.64 in 53 males), and indeed longer than in *ibericus* (*mean* 19.64 mm in 33 males). I therefore recommend that tarsus length should be included when comparing breeding *ibericus* with local Common Chiffchaffs.

For males, the discriminant MCV is 73.2. 89% of *ibericus* males had values higher than 73.2, and all *collybita* males had lower values. The overlap area is 71.9–73.2, within which 11% of the males of both taxa combined fell.

Even for females the MCV gave some guidance. I checked it against 16 *ibericus* and 39 *collybita* females. The discriminant value for females is 70.9. All the female *collybita* had values lower than 70.9, whereas nine of the 16 female *ibericus* (56%) had higher values. There is a large overlap area between 61.0–70.9 where 62% of the females of both taxa combined fell. For the present sample, this gives a far better separation than the formula of Salomon *et al.* (1997).

MCV was calculated for the *brehmii* type specimen and shown to be 60.8. This confirms that the *brehmii* type is a *collybita*, the MCV falling just short of the minimum value for Iberian Chiffchaff females. Also, on the *brehmii* type, P2 falls between P8/9, which only occurs in Common Chiffchaff, not in Iberian Chiffchaff.

The correct identity of the *ibericus* type as an Iberian Chiffchaff was also confirmed by its MCV of 77.7.

It is worth noting that some females of the Fenno-Scandian Chiffchaff *P. c. abietinus* can match the MCV and biometry of a male Iberian Chiffchaff. Particularly brightly coloured *abietinus* are therefore a potential pitfall. Generally, though, colouration should help avoid this mistake: *abietinus* has slightly paler and more greyish-green upperparts (not such a saturated moss green colour), some buff or brownish tinges on sides of head, neck and breast, less vividly yellow supercilium

TABLE 1

Summary of biometry of *Phylloscopus ibericus* Ticehurst 1937.
Measurements (mm): range, **mean** and sample size given for all data except wing formula and tail/wing and bill/wing ratios.

	Males	**Females**
Wing	56-64, **61.02**, 33	54-59, **56.38**, 16
Tail	42.5-52, **47.32**, 33	41-48, **44.22**, 16
Tarsus	17.9-20.7, **19.64**, 33	17.6-19.0, **18.51**, 15
Bill (to skull)	10.4-13.3, **12.06**, 31	11.1-12.3, **11.78**, 15
depth (at feathering)	2.1-2.8, **2.51**, 33	2.2-2.7, **2.42**, 16
P1>p.c.	2-8, **5.83**, 33	4-6.5, **5.22**, 16
P2=WT	5-8, **6.48**, 32	5.5-7.5, **6.34**, 16
P2 =	=7/8 44%, =6/7 32%, =7 9%, =8 6%, =6 6%	=7/8 46.5%, =8 33.5%, =6/7 13.5%, =7 6.5%
P3=WT	0-1	0-1.5
P5=WT	0-1.5	0-2.5
P6=WT	1.5-6.5, **3.55**, 28	1.5-4, **2,5**, 12
P7=WT	4-8, **6.24**, 27	3.5-6.5, **5.46**, 12
P8=WT	6-10, **8.46**, 26	6-8.5, **7.33**, 12
P10=WT	9.5-13.5, **10.89**, 28	7.5-11, **9.88**, 12
S1=WT	10-14, **12.20**, 28	9.5-12.5, **11.18**, 14
P1<P2	22-29, **25.23**, 30	20.0-25.5, **22.72**, 16
Tail/wing x100	69.5-83.3, **77.56**, 33	75.0-82.5, **78.41**, 16
Bill/wing x100	17.6-21.2, **19.73**, 33	19.8-22.4, **20.95**, 15
MCV	71.9-89.2, **75.9**, 26	61.1-79.7, **70.5**, 16

and undertail-coverts, and the legs are on average slightly darker.

Plumage and bare parts characters

If the MCV as described above is combined with a careful analysis of plumage and bare part characters, it will be possible to identify even more birds without the help of song or calls. The following criteria should be helpful:

(1) Colours of upperparts are generally more indicative than colours of underparts. As a rule, the entire upperparts of *ibericus* are purer moss green than on Common Chiffchaff, lacking the brown tinge on crown and mantle usually present in *collybita* (Plate 1). When compared with other species within *Phylloscopus*, the upperparts of the Iberian Chiffchaff are about as green as in Wood Warbler *P. sibilatrix* and almost a more saturated green hue than in Willow Warbler, although Willow Warblers and Iberian Chiffchaffs can appear quite similar.

Note that in freshly moulted plumage in early autumn a *very slight* brownish tinge can be found on the greenish upperparts of some Iberian Chiffchaffs. This brown element, if at all present in autumn, seems to fade, presumably by bleaching, much quicker than the green colours, and in spring there should be no brown trace left.

TABLE 2

Summary of biometry of *Phylloscopus c. collybita* Vieillot 1817.
Measurements (mm): range, **mean** and sample size given for all data except wing formula and tail/wing and bill/wing ratios.

	Males	**Females**
Wing	56-64, **60.07**, 92	52.5-60, **55.84**, 37
Tail	42.5-52.5, **47.82**, 92	41-51, **44.27**, 37
Tarsus	17.9-21.0, **19.60**, 92	17.4-20, **18.49**, 36
Bill (to skull)	10.4-12.7, **11.75**, 88	10.7-12.3, **11.65**, 34
depth (at feathering)	2.0-2.8, **2.45**, 85	2.0-2.6, **2.37**, 35
P1>p.c.	4-10, **6.57**, 92	3.5-9, **5.95**, 37
P2=WT	4.5-8.5, **6.18**, 91	4.5-7.5, **5.95**, 37
P2 =	=7/8 53.4%, =7 16.5%, =8 11%, =8/9 9.6%, =6/7 5.5%, =9 4%	=7/8 37.2%, =8 18.6%, =8/9 14%, =7 9%, =9 9%, =6/7 7%, =9/10 2.3%, =10 2.3%
P3=WT	0-1	0-0.5
P5=WT	0-1	0-1
P6=WT	1-6, **2.19**, 81	0.5-4, **1.72**, 29
P7=WT	3-8, **4.95**, 82	3-6.5, **4.40**, 30
P8=WT	5-10, **7.14**, 81	4.5-8.5, **6.37**, 30
P10=WT	8-13, **9.93**, 78	7.5-11, **9.22**, 30
S1=WT	9.5-14, **11.22**, 81	8.5-12.5, **10.60**, 31
P1<P2	20-29, **23.60**, 89	19-25, **22.00**, 37
Tail/wing x100	73.2-86.4, **79.60**, 92	75.0-85.0, **79.27**, 37
Bill/wing x100	17.6-21.6, **19.58**, 88	19.3-22.4, **20.91**, 34
MCV	59.7-73.2, **67.8**, 75	56.4-70.8, **63.9**, 39

(2) Whereas Common Chiffchaff generally has a fairly obvious element of buff and brown tinges on ear-coverts, sides of neck, and admixed with the yellow on much of the breast, or at least on sides of breast, and on flanks and sometimes on undertail-coverts, Iberian Chiffchaff is more tinged yellowish-green on sides of head and neck, and has no buff or brown hues at all, or *only very little of it behind the eye and on ear-coverts.* The breast is whitish with clear yellow streaking. It may be possible in fresh autumn plumage to detect on some Iberian Chiffchaffs a *very slight* brownish tinge on the extreme sides of neck and breast.

Many worn breeding Common Chiffchaffs lose most of the buff and brown elements on the underparts by May or June due to wear and bleaching, and become progressively more similar to Iberian Chiffchaffs. Most attention should be paid to upperpart colouration, and identification will be most reliable when based on a combination of as many characters as possible.

(3) Typically, Iberian Chiffchaff has vivid lemon yellow undertail-coverts, contrasting with a rather whitish centre to the belly. Such a contrast is occasionally met with in Common Chiffchaff too, but as a rule the latter has not as pure whitish on the belly, nor has it quite as deep yellow on the undertail-coverts. Some Iberian

Chiffchaffs lack the vivid yellow on the undertail-coverts, but they are at least pale yellow and never tinged buffish.

(4) The supercilium of Iberian Chiffchaff is on average more pronounced and more vividly yellow, particularly in front of and above the eye, than on Common Chiffchaff. Since it is an average difference only, it follows that this is less marked on some birds.

(5) On average, the legs are a trifle paler brown on Iberian than on Common Chiffchaff, though many are alike. It should be noted that *collybita* in southern France tends to have slightly paler legs than North European breeders.

(6) The bill in Iberian Chiffchaff is very slightly stronger than in Common Chiffchaff, meaning that it is easier to see a little flesh-colour along the cutting edges and on the base of the lower mandible on Iberian than on the average Common Chiffchaff. There is much overlap, though, and this is therefore of limited value.

Behaviour as a means of identification?

Both Common and Iberian Chiffchaffs share a habit of quickly dipping their folded tail down from the normal position. This is done frequently when they move in the canopy or on low branches in the open. Some birds do it more than others, and the frequency seems to vary with the mood of the bird. Still, this is a rather distinctive and constant habit of both species.

It is not, on the other hand, seen in the Willow Warbler, which instead flicks both wings and at the same time moves the tail sideways, or half-opens the tail quickly as the wings are flicked. Occasional Willow Warblers dip their tails, but this is far from normal behaviour.

Since Iberian Chiffchaffs are most like Willow Warblers in the field, with similar pure green upperparts and clean yellow and white underparts, it is—perhaps surprisingly—these two which are most difficult to separate. It is here the different tail and wing movements can be used as a guide. A green-mantled Willow Warbler-like bird which is tail-dipping should be checked very closely. Supplementary characters are then for the bird to be not too large, to have slightly brownish and worn primary tips in spring, and not to have too prominent a primary projection. If the supercilium is vividly lemon yellow in front of and above the eye, this will support the identification as Iberian Chiffchaff.

Wintering area

There seems to be very little evidence for Iberian Chiffchaff to be resident in Iberia, although this is still implied by some authors (see above), at least as a partial strategy. These statements seem to rely on a few older field records. There is to my knowledge not one single specimen of Iberian Chiffchaff collected in winter from the Iberian peninsula. Confirmed winter records are therefore needed. Both the Spanish and the Portuguese atlases (Purroy 1997, Rufino 1989) are vague when discussing the Iberian Chiffchaff's winter where-abouts.

With the similarity between Iberian and Common Chiffchaffs, and the lack of knowledge of how to separate them which prevailed less than ten years ago, field records must be treated critically. Even with a better understanding, the two taxa are so similar that trapping or collecting appear to be the only reliable ways to identify silent birds, save the few instances when an observation is both prolonged and made under ideal circumstances. (See above about behaviour, and below.)

As Salomon *et al.* (1997) pointed out, several lines of evidence suggest that the Iberian Chiffchaff migrates further than the Common Chiffchaff. The former has a longer and slightly more pointed wing than its close relative in France, yet it breeds to the south of it. This suggests a longer migration, since a more pointed wing is generally associated with a longer migration (Rensch 1938, Kipp 1958). It also seems to arrive later in spring than Common Chiffchaff.

Thonnérieux (1983) described a bird singing like an Iberian Chiffchaff in winter in South Volta, Ghana. There is also an unpublished record of Iberian Chiffchaff from tropical Africa (Morel, in Salomon *et al.* 1997), which I have not been able to check, and Clement (1995) mentions wintering in Burkina Faso.

The following records are relevant. In Muséum national d'Histoire naturelle, Paris (MNHN), I found two Iberian Chiffchaffs labelled as Common Chiffchaffs, collected in tropical Africa:

MNHN 1933.1927. Niger River, between Massina ('Ké Masina') and Ségou, Mali, 4 Feb 1932, male. Wing 63.5, tail 48.5, tarsus 20.0, bill (to skull) 13.2, bill depth (at feathering) 2.4. Wing formula: P1 > p.c. +7, P2 < WT –6.5 (and falling between P7/8), P3 and P4 0, P5 –1, P6 –2.5, P7 –5.5, P8 –8.5, P10 –11.5, S1 –13. P1 < P2 24. Colouration: pure lemon streaking on throat/breast, and strong lemon on flanks and undertail-coverts. Yellowish hues on sides of head. There is a faint brownish cast in the strong green colour above (crown, mantle), but this might be normal for winter plumage (which is poorly known). It is certainly less brownish than most *collybita* in winter plumage. MCV 77.7.

MNHN 1995.208. Bamako, Mali, Dec 1955, not sexed but unquestionably male on size. Wing 64, tail 44.5, tarsus 18.8, bill (to skull) 13.3, bill depth (at feathering) 2.7. Wing formula: P1 > p.c. +5.5, P2 < WT –7 (and falling between P7/8), P3 and P4 0, P5 –1.5, P6 –3.5, P7 –6, P8 –8, P10 –10, S1 –11.5. P1 < P2 27. Comments regarding plumage as for preceding specimen. MCV 85.3.

In late March and early April 2001 I visited Morocco together with Andrew Lassey and Mike Pearson. In southern Morocco, we observed several migrant Iberian Chiffchaffs. These were identified on size, plumage and behaviour (see above). Only birds seen very close in good light and for longer periods are listed below. Several others were probably also Iberian Chiffchaffs but were not seen close or long enough to confirm identification. All birds could be compared with either or both Common Chiffchaff and Willow Warbler, and some with Western Bonelli's Warbler *P. bonelli*. One Iberian Chiffchaff was trapped to confirm our identifications in the field (Plate 1). The birds seen were as follows: 27 Mar 2001, Marrakech, three Iberian Chiffchaffs seen; 4 Apr 2001, Der Kaoua oasis on the Erfoud–Merzouga track, SE Morocco, one male Iberian Chiffchaff trapped (Plate 1a), DNA analysis later confirmed the identification; 7 April 2001, Oued Massa, SW Morocco, two Iberian Chiffchaffs seen.

These observations seem to support the view that the Iberian Chiffchaff is a long-distance migrant which winters primarily in tropical Africa. The migration through Morocco in late March and early April may prove to be regular with concerted observation.

That some birds may spend the winter north of Sahara is indicated by a specimen in Paris (MNHN 1967.575) collected in Redeyef in west central Tunisia (west of Gafsa) on 12 Jan 1955. Some uncertainties regarding the wintering area obviously remain.

Acknowledgements

I thank Professor Alf Johnels for inspiring me (without the proper background) to attempt a few taxonomic works, and the Signhild Engkvist Fund for generous support. Thanks are due to the staffs at various museums who enabled me examine the relevant specimens: Per Ericson and Göran Frisk (Stockholm), Vladimir Loskot (St. Petersburg), Robert Prŷs-Jones and Frank Steinheimer (Tring), Manfred Scholz (Braunschweig), Paul Sweet (New York) and Claire Voisin (Paris). I am grateful to Andrew Lassey and Mike Pearson for company and help with fieldwork in Morocco. Urban Olsson, University of Gothenburg, kindly analysed several feather samples for DNA. Dr Alan Knox and Dr David Parkin read the first draft of the manuscript and suggested numerous improvements for which I am much indebted.

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Appendix 1

Examined specimens considered to be *P. ibericus* and used for this paper:

BM(NH), Tring: 1886.7.8.622 (Gibraltar 3 Apr); 1925.7.15.12 (Algarve, Portugal, 30 May); 1934.1.1.5028 (Coimbra, Portugal, 23 May); 1934.1.1.5029 (Coimbra 23 May); 1934.1.1.5030 (NW Spain 30 Sep); 1934.1.1.5043 (R'Hira Ammam, Algeria, 1 May); 1934.1.1.5044 (Algeciras, Spain, 30 March); 1934.1.1.5045 (near Coimbra 23 May; the type); 1934.1.1.5046 (Coimbra 23 May); 1934.1.1.5047 (N Portugal 27 May); 1934.1.1.5048 (Algarve 18 May); 1941.5.30.4795 (Sesombres, Portugal, 14 Apr); 1941.5.30.4796 (Coimbra 23 May); 1941.5.30.4797 (Galicia, Spain, 19 May); 1941.5.30.4798 (Jesus, Braga, Portugal, 27 Apr); 1941.5.30.4799 (Setubal, Portugal, 20 Apr); 1947.4.394 (Pau, France, 20 Apr); 1949.Wh.1.1.2.242 (Setubal 18 Apr); 1949.Wh.1.1.2.243 (Algarve 10 Apr); 1949.Wh.1.1.2.244 (S. Antonio 9 Apr); 1949.Wh.1.1.2.245 (Cizimbra, Portugal, 4 May); 1949.Wh.1.1.2.246 (Jesus 28.4); 1949.Wh.1.1.2.247 (Vigo, Spain, 8 May); 1965.M.14.232 (Gavarnie, France, 11 Sep);

1965.M.14.233 (St. Sauveur, France, 14 Apr).

MNHN, Paris: 1933.1977 (Massina, Mali, 4 Feb); 1967.575 (Redeyef, Tunisia, 12 Jan); 1978.1250 (Ibardin, France, 9 May); 1978.1251 (Ibardin 4 May); 1978.1252 (Ascain, France, 8 Jul); 1978.1254 (St. Jean de Luz, France, 3 May); 1978.1257 (St. Jean de Luz 6 Apr); 1978.1258 (St. Jean de Luz 24 May); 1978.1260 (St. Jean de Luz 17 May); 1978.1262 (St. Jean de Luz 15 Jun); 1978.1263 (Hendaye, France, 26 May); 1978.1269 (Ibardin 4 May); 1995.208 (Bamako, Mali, Dec); 1999.664 (Aya, Quipúzcoa, Spain, 20 May); 1999.665 (no loc., presumably autumn).

AMNH, New York: 449.442 (Ahouraima, Spain, 3 Jun); 449.450 (Algeciras, Spain, 2 Jun); 449.451 (Algeciras 2 Jun); 449.452 (Algeciras 4 Jun); 449.453 (Algeciras 30 Apr); 449.454 (Algeciras 29 Apr).

SNMB, Braunschweig: 2971 (Algiers, presumably spring).

Specimens labelled *ibericus* (or *brehmii*) but either misidentified or considered not convincingly identified, and hence not included in this study as *ibericus*:

SNMB 1287.20.1. Portugal, April 1869. *P. c. collybita*. Treated extensively in the main section.

SNMB 6484. Morocco (?), 3 May 1884, female. *P. c. collybita*. Treated extensively in the main section.

BM(NH) 1877.10.23.27. Morocco, no date, probably female. Identification uncertain, being very slightly tinged brown on a tiny portion of mantle (partly due to missing feathers so that the brown colour of the feather bases is more exposed), and on sides of breast. Also, biometry not diagnostic. Nevertheless, has a close similarity to female *ibericus*. MCV 64.2.

BM(NH) 1881.5.1.856. Tangier, no date or sex. Identification uncertain due to faint buff hue on sides of breast and throat, but biometry and rest of plumage strongly favour normal *ibericus*. MCV 77.1.

BM(NH) 1924.12.18.349. N Biskra, N Algeria, possibly 6 Jan 1912, but month ambiguously noted on label. A controversial bird, being very slightly tinged buff-brown on breast. Also, biometry is less typical. All the same, has a close similarity to female *ibericus*. MCV 64.2.

BM(NH) 1949Wh.1.1.2.234. Gavarnie, French Pyrenees, 10 Oct 1929, female? Quite fresh, but tail feathers pointed and slightly worn. Plumage colours very close indeed to *ibericus* (but slight buff tinge to lower flanks/upper vent). MCV 65.2.

AMNH 449.493. Canterets, C Pyrenees, France, May 1905, no sex but male according to size. Very similar to *ibericus*, but undertail-coverts not as deep yellow as in many (though certainly could pass for one), centre of belly not as pure white. Could be a hybrid, but biometry suggests *ibericus*. MCV 76.9.

MNHN 1960.3931. Djasset, Sahara, 16 Nov 1959, female. Exact locality not identified. Not convincing, has faint buff tinge (including on breast) and rather pale greyish-green tinges above. If sex correct then probably *abietinus*. Wing 62. MCV 77.9.

ZI, St. Petersburg 101.388. Spain, 27 May 1882, female. Biometry not conclusive for *ibericus*, and plumage intermediate: underparts without buff (except very slight tinge on sides of breast), streaked pale lemon on whitish ground. However, belly not whiter, and undertail-coverts not particularly strong lemon. Sides of head rather buffish-tinged. Crown and mantle greenish with a slight brown cast. This plumage could fit both taxa. MCV 65.3.

ZI, St. Petersburg 101.389. Morocco, 16 May 1885, female. Identity uncertain; very slightly tinged buff-brown on sides of breast, and a faint brown hue on crown and mantle, although these are rather green and could fit *ibericus*. Biometry intermediate. Probably female *ibericus*, but perhaps best to add a question mark. (A Schlüter skin, thus provenance not entirely reliable.) MCV 61.8.

ZM, Copenhagen 65.479. Almeria, S Spain, 11 Mar 1966, female. May be a pure *ibericus*, but comparison should be made with a series. Sides of head and flanks have a little grey-brown wash, else only white and lemon yellow beneath. Quite green above except that crown has faint brown tinge. MCV 68.9.

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ISSN 0007-1595
Edited by Professor Chris Feare
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Printed on acid-free paper.
Published by the BRITISH ORNITHOLOGISTS' CLUB
Typeset by Alcedo Publishing of Colorado Springs, USA, and printed by Crowes of Norwich, UK

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CORRECTIONS TO TEXT

Page	27	line	16	*Accipiter* not *Accipter*
“	45	“	8	*militaris* not *militarius*
“	45	“	18	*smithii* not *smithi*
“	45	“	35	*poecilopterus* not *poecilopters*
“	46	“	34	*Diomedea* not *Diomedia*
“	46	“	40	*Cephalopterus* not *Cepalopterus*
“	47	“	7	*textilis* not *textillis*
“	47	“	32	*Paradisaea* not *Paradisea*
“	50	“	27	*Cissopis* not *Cissops*
“	52	“	9	*Rostrhamus* not *Rosthramus*
“	124	“	38	*Campylorhamphus* not *Campyloramphus*
“	128	“	1	no “,” after moult
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“ “ “ “		“	15	no “,” after moult
“	189	“	27	*Spizaetus* not *Spizaethus*
“	190	“	28	*dougallii* not *dougalli*
“	280	“	22	*Agelaioides* not *Agelaiodes*

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